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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

August 15-September 11, 1937

The accompanying tables summarize the prevalence of eight important communicable diseases based on weekly telegraphic reports from State Health Departments. The reports from each State are published in the Public Health Reports under the section "Prevalence of Disease." Table 1 gives the number of cases of poliomyelitis reported by each State in recent weeks of 1937 and in corresponding weeks of 1936, 1935, and 1934, and table 2 gives the number of cases of eight important communicable diseases, including poliomyelitis, for the 4-week period ending September 11, the number reported for the corresponding period in 1936, and the median number for the years 1932-36.

DISEASES ABOVE MEDIAN PREVALENCE

Poliomyelitis.—A total of 6,407 cases of poliomyelitis has been reported since the first of January, as compared with 2,036 and 7,278 during the same period in 1936 and 1935, respectively. The number of cases is more than three times that of last year, when the prevalence was confined mostly to the East South Central region, but did not reach the level of 1935, when the disease was epidemic at this time in States along the Atlantic Coast, nor that of 1931 (10,193 cases), when a more severe epidemic was in progress in the North Atlantic regions. In 1934 and 1933 the numbers of cases for this period totaled 5,290 and 3,038. In 1934 the disease was epidemic in California and other western States; in 1933 a minor outbreak occurred in the North Atlantic regions; and in 1932, with a total of 2,446 cases, not considered epidemic, the highest incidence was also reported from the North Atlantic States.

Table 1 shows for each State the number of cases of poliomyelitis reported since the beginning of the current year, with comparative data for the corresponding period in the 3 preceding years. It includes also the weekly number of cases in each State for recent weeks of 1937.

(1369)

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks of 1937*¹

| Division and State | 37 weeks ended— | | | | Cases reported in 1937 for week ended— | | | | | | | | | | | |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|--|---------|---------|---------|--------|---------|---------|---------|---------|----------|----------|--|
| | Sept. 15, 1934 | Sept. 14, 1935 | Sept. 12, 1936 | Sept. 18, 1937 | July 10 | July 17 | July 24 | July 31 | Aug. 7 | Aug. 14 | Aug. 21 | Aug. 28 | Sept. 4 | Sept. 11 | Sept. 18 | |
| All States ¹ | 5,290 | 7,278 | 2,038 | 6,407 | 255 | 275 | 324 | 401 | 409 | 455 | 492 | 622 | 641 | 817 | 879 | |
| New England: | | | | | | | | | | | | | | | | |
| Maine..... | 11 | 67 | 28 | 63 | 2 | 0 | 4 | 8 | 13 | 8 | 6 | 8 | 19 | 12 | 16 | |
| New Hampshire..... | 8 | 37 | 3 | 16 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 5 | 4 | 0 | 1 | |
| Vermont..... | 8 | 12 | 9 | 19 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | 5 | 0 | 1 | 6 | |
| Massachusetts..... | 64 | 869 | 45 | 298 | 3 | 2 | 10 | 13 | 12 | 25 | 41 | 51 | 44 | 44 | 41 | |
| Rhode Island..... | 1 | 197 | 2 | 11 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 3 | 0 | 4 | |
| Connecticut..... | 13 | 246 | 8 | 63 | 2 | 0 | 0 | 2 | 3 | 3 | 6 | 7 | 10 | 13 | 16 | |
| Middle Atlantic: | | | | | | | | | | | | | | | | |
| New York..... | 155 | 2,090 | 128 | 437 | 6 | 10 | 8 | 10 | 17 | 22 | 39 | 64 | 52 | 91 | 91 | |
| New Jersey..... | 54 | 258 | 20 | 92 | 1 | 1 | 1 | 5 | 3 | 6 | 14 | 8 | 10 | 13 | 21 | |
| Pennsylvania..... | 82 | 120 | 61 | 185 | 0 | 1 | 0 | 6 | 11 | 14 | 21 | 22 | 19 | 37 | 40 | |
| East North Central: | | | | | | | | | | | | | | | | |
| Ohio..... | 144 | 71 | 72 | 431 | 9 | 14 | 20 | 48 | 38 | 45 | 22 | 50 | 31 | 66 | 59 | |
| Indiana..... | 35 | 21 | 16 | 113 | 1 | 8 | 7 | 15 | 7 | 8 | 12 | 7 | 11 | 18 | 10 | |
| Illinois..... | 136 | 136 | 195 | 552 | 2 | 8 | 11 | 26 | 28 | 32 | 64 | 46 | 106 | 130 | 81 | |
| Michigan..... | 114 | 421 | 45 | 271 | 1 | 2 | 4 | 10 | 14 | 24 | 21 | 31 | 34 | 49 | 57 | |
| Wisconsin..... | 46 | 46 | 14 | 133 | 1 | 0 | 2 | 2 | 6 | 10 | 6 | 13 | 23 | 19 | 45 | |
| West North Central: | | | | | | | | | | | | | | | | |
| Minnesota..... | 49 | 43 | 11 | 149 | 0 | 1 | 1 | 1 | 9 | 5 | 10 | 14 | 18 | 30 | 52 | |
| Iowa..... | 20 | 33 | 22 | 126 | 0 | 1 | 3 | 3 | 4 | 8 | 7 | 14 | 16 | 26 | 35 | |
| Missouri..... | 22 | 24 | 25 | 247 | 22 | 4 | 16 | 16 | 16 | 16 | 13 | 29 | 25 | 36 | 47 | |
| North Dakota..... | 6 | 5 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | |
| South Dakota..... | 25 | 5 | 6 | 17 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 5 | 4 | 3 | |
| Nebraska..... | 11 | 9 | 11 | 147 | 0 | 4 | 4 | 11 | 7 | 14 | 15 | 19 | 19 | 27 | 18 | |
| Kansas..... | 45 | 16 | 25 | 144 | 3 | 4 | 4 | 7 | 13 | 13 | 13 | 15 | 14 | 20 | 30 | |
| South Atlantic: | | | | | | | | | | | | | | | | |
| Delaware..... | 3 | 5 | 1 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | |
| Maryland..... | 18 | 59 | 9 | 61 | 0 | 0 | 1 | 7 | 3 | 13 | 5 | 7 | 6 | 11 | 7 | |
| District of Columbia..... | 6 | 55 | 2 | 17 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 3 | 4 | 0 | 2 | |
| Virginia..... | 51 | 635 | 36 | 49 | 3 | 3 | 1 | 5 | 4 | 4 | 1 | 2 | 1 | 3 | 5 | |
| West Virginia..... | 55 | 34 | 21 | 53 | 0 | 2 | 1 | 4 | 12 | 1 | 5 | 7 | 4 | 2 | 2 | |
| North Carolina..... | 35 | 563 | 57 | 86 | 4 | 8 | 9 | 6 | 4 | 6 | 5 | 4 | 8 | 1 | 4 | |
| South Carolina..... | 10 | 26 | 16 | 21 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | |
| Georgia..... | 12 | 14 | 52 | 63 | 6 | 4 | 3 | 2 | 6 | 0 | 5 | 4 | 2 | 0 | 5 | |
| Florida..... | 14 | 14 | 16 | 25 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 1 | 2 | 4 | 1 | |
| East South Central: | | | | | | | | | | | | | | | | |
| Kentucky..... | 76 | 214 | 47 | 113 | 7 | 5 | 18 | 33 | 9 | 2 | 4 | 8 | 4 | 4 | 4 | |
| Tennessee..... | 38 | 62 | 224 | 98 | 11 | 7 | 10 | 6 | 3 | 1 | 1 | 5 | 2 | 3 | 1 | |
| Alabama..... | 38 | 48 | 355 | 60 | 4 | 1 | 1 | 1 | 3 | 4 | 2 | 4 | 5 | 7 | 3 | |
| Mississippi..... | 18 | 9 | 93 | 241 | 20 | 20 | 13 | 13 | 8 | 11 | 11 | 8 | 10 | 10 | 4 | |
| West South Central: | | | | | | | | | | | | | | | | |
| Arkansas..... | 11 | 14 | 6 | 282 | 36 | 36 | 48 | 26 | 16 | 19 | 10 | 7 | 6 | 12 | 9 | |
| Louisiana..... | 13 | 79 | 17 | 95 | 8 | 7 | 7 | 5 | 7 | 8 | 6 | 4 | 4 | 7 | 8 | |
| Oklahoma..... | 9 | 10 | 8 | 355 | 55 | 46 | 53 | 28 | 30 | 23 | 19 | 25 | 9 | 14 | 19 | |
| Texas..... | 79 | 59 | 24 | 522 | 36 | 52 | 31 | 42 | 58 | 45 | 51 | 34 | 36 | 21 | 33 | |
| Mountain: ² | | | | | | | | | | | | | | | | |
| Montana..... | 235 | 5 | 9 | 17 | 1 | 0 | 1 | 0 | 2 | 1 | 3 | 1 | 3 | 1 | 4 | |
| Idaho..... | 97 | 1 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| Wyoming..... | 4 | 1 | 2 | 29 | 0 | 1 | 1 | 1 | 2 | 6 | 0 | 10 | 0 | 2 | 5 | |
| Colorado..... | 13 | 7 | 18 | 129 | 0 | 1 | 3 | 2 | 2 | 8 | 21 | 28 | 20 | 21 | 31 | |
| New Mexico..... | 12 | 5 | 7 | 17 | 1 | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 3 | |
| Arizona..... | 88 | 12 | 3 | 17 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 1 | 2 | 3 | |
| Utah..... | 7 | 5 | 2 | 14 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 5 | 4 | |
| Pacific: | | | | | | | | | | | | | | | | |
| Washington..... | 435 | 24 | 34 | 31 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 5 | 1 | 2 | 10 | |
| Oregon..... | 35 | 8 | 14 | 32 | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 0 | 2 | 4 | 2 | |
| California..... | 2,839 | 554 | 221 | 418 | 8 | 19 | 21 | 34 | 33 | 36 | 25 | 44 | 38 | 37 | 46 | |

¹ A similar table appeared in the PUBLIC HEALTH REPORTS for Sept. 3, 1937, p. 1208.² Exclusive of Nevada, from which State no reports are received.

As this disease is usually most prevalent during the months of August and September, more than 4,000 of the 6,407 cases reported to date this year occurred during the 8 weeks ending September 11. Later reports (week ending Sept. 18) show a total of 879 cases—the highest weekly incidence reported this year. The current epidemic

started in the West South Central region, spread into the North Central regions and then to the Atlantic coast areas. During this period 117 cases were reported from Colorado and 268 from California, but other States in the western regions have reported only about the usual seasonal incidence. The Middle Atlantic region is low in relation to the preceding 5-year median, but all other regions show considerable excesses.

Measles.—The incidence of measles (2,972 cases) was about 60 percent above that (1,861 cases) for the corresponding period in 1936 and was also considerably above the average for the season. Each region except the New England and Pacific regions reported an increase over last year, but the disease appeared to be unusually prevalent in the Middle Atlantic, East North Central, and South Central regions.

Meningococcus meningitis.—The meningococcus meningitis incidence (216 cases) stood approximately at the 1936 level. For this period in 1935, 1934, and 1933 the numbers of cases totaled 268, 129, and 129, respectively. The number of cases reported from the South Atlantic and South Central regions was somewhat above the seasonal expectancy, but in all other regions the incidence was about normal.

Smallpox.—Smallpox still maintained a relatively high level. For the 4 weeks ending September 11 there were 222 cases reported, as compared with 141, 117, and 70 for the corresponding period in the years 1936, 1935, and 1934, respectively. The Central and Western regions have been almost entirely responsible for the high incidence of this disease that has prevailed during the past 3 years, while the Atlantic coast regions have been practically free from the disease.

DISEASES BELOW MEDIAN PREVALENCE

Typhoid fever.—The number of cases (2,467) of typhoid fever, although slightly above the low record of 2,355 cases reported for this period in 1936, was well below the usual seasonal incidence. The increase over last year was due almost entirely to an excess of cases in the East North Central and West South Central regions. Compared with the preceding 5-year median the incidence of typhoid fever was low in the country as a whole and also in each region except the West South Central and Pacific regions.

TABLE 2.—Number of reported cases of 8 communicable diseases in the United States during the 4-week period Aug. 15–Sept. 11, 1937, the number for the corresponding period in 1936, and the median number of cases reported for the corresponding period 1932–36¹

| Division | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median |
|----------------------------------|----------------|-------|---------------|------------------------|-------|---------------|----------------------|-------|---------------|--------------------------|-------|---------------|
| | Diphtheria | | | Influenza ² | | | Measles ³ | | | Meningococcus meningitis | | |
| United States ¹ | 1,468 | 1,393 | 2,058 | 1,193 | 834 | 1,279 | 2,972 | 1,861 | 2,385 | 216 | 220 | 160 |
| New England..... | 28 | 21 | 62 | 3 | 7 | 6 | 124 | 233 | 204 | 7 | 7 | 7 |
| Middle Atlantic..... | 128 | 169 | 198 | 22 | 33 | 30 | 963 | 683 | 730 | 40 | 47 | 38 |
| East North Central..... | 185 | 201 | 256 | 161 | 93 | 226 | 751 | 213 | 474 | 29 | 37 | 39 |
| West North Central..... | 78 | 105 | 184 | 167 | 53 | 58 | 139 | 58 | 174 | 19 | 18 | 19 |
| South Atlantic..... | 466 | 317 | 493 | 336 | 225 | 413 | 240 | 235 | 317 | 47 | 41 | 15 |
| East South Central..... | 232 | 235 | 428 | 57 | 65 | 120 | 243 | 60 | 88 | 28 | 23 | 15 |
| West South Central..... | 214 | 201 | 400 | 318 | 221 | 176 | 126 | 93 | 63 | 22 | 13 | 8 |
| Mountain..... | 51 | 39 | 47 | 45 | 62 | 26 | 189 | 78 | 87 | 8 | 21 | 5 |
| Pacific..... | 86 | 105 | 105 | 84 | 75 | 68 | 197 | 208 | 208 | 16 | 13 | 13 |
| | | | | | | | | | | | | |
| Division | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median | Current period | 1936 | 5-year median |
| | Polymyellitis | | | Scarlet fever | | | Smallpox | | | Typhoid fever | | |
| United States ¹ | 2,572 | 626 | 1,251 | 3,450 | 3,492 | 3,990 | 222 | 141 | 117 | 2,467 | 2,355 | 3,315 |
| New England..... | 284 | 17 | 27 | 142 | 212 | 253 | 0 | 0 | 0 | 44 | 40 | 52 |
| Middle Atlantic..... | 390 | 69 | 686 | 595 | 727 | 749 | 0 | 0 | 0 | 265 | 297 | 297 |
| East North Central..... | 749 | 129 | 170 | 1,024 | 1,098 | 1,129 | 28 | 19 | 24 | 464 | 257 | 561 |
| West North Central..... | 394 | 23 | 69 | 481 | 401 | 401 | 44 | 33 | 15 | 173 | 209 | 248 |
| South Atlantic..... | 111 | 64 | 64 | 303 | 291 | 486 | 0 | 0 | 5 | 434 | 484 | 688 |
| East South Central..... | 88 | 225 | 70 | 243 | 172 | 276 | 21 | 1 | 2 | 395 | 520 | 664 |
| West South Central..... | 265 | 13 | 15 | 194 | 114 | 185 | 5 | 1 | 11 | 519 | 393 | 481 |
| Mountain..... | 127 | 14 | 10 | 214 | 138 | 118 | 71 | 73 | 8 | 78 | 107 | 112 |
| Pacific..... | 164 | 72 | 72 | 304 | 339 | 335 | 53 | 14 | 28 | 95 | 78 | 78 |

¹ 48 States. Nevada is excluded, and the District of Columbia is counted as a State in these reports.

² 44 States and New York City. The median is for the years 1933–36, only; the data for 1932 are not comparable.

³ 46 States. Mississippi and Georgia are not included.

Scarlet fever.—This disease continued to maintain a low level in relation to recent years. In the North Central region, where the disease has been unusually prevalent for the past 3 years, the incidence has dropped to a more normal level, and while the South Atlantic and South Central regions reported an excess of cases over 1936, the incidence in each region compared very favorably with that of preceding years. In the Mountain region the number of cases was somewhat above the incidence of recent years but it may be possible that the seasonal increase of this disease that usually occurs soon after the middle of September has begun earlier in that region.

Diphtheria.—The number of cases of diphtheria reported for the current period was 1,468, as compared with 1,393, 2,058, and 1,975 for the corresponding period in the years 1936, 1935, and 1934, respectively. The increase of diphtheria over last year that has prevailed since about the middle of June has been confined largely to the South Central and Western regions. During the current period, however, the incidence in those regions dropped to about the usual level and

the disease appeared to be more prevalent in the South Atlantic region. States in that region reporting a large number of cases were North Carolina (137), Virginia (98), Georgia (95), and South Carolina (43).

Influenza.—The number of cases (1,193) of influenza represented an increase of about 40 percent over the number reported for the corresponding period in 1936, but it very closely approximated the incidence in each of the 3 preceding years. For the country as a whole the current incidence fell slightly below the average of the 4 preceding years; the distribution by geographic regions shows that the incidence in the West North Central and West South Central regions was somewhat above the normal seasonal incidence, while other regions closely approximated the 4-year average or fell below it.

MORTALITY, ALL CAUSES

The average mortality rate for large cities for the 4 weeks ending September 11, based on data received from the Bureau of the Census, was 9.9 per 1,000 inhabitants (annual basis). The rates for the separate weeks were 10.2, 9.8, 10.2, and 9.4. The interruption that occurred in the usual seasonal decline of the death rate during the third week of the period was no doubt mostly due to the heat. During this period cities in the East North Central and Atlantic coast regions showed the largest excesses in mortality.

REDUCING RESIDUAL TYPHOID IN MICHIGAN

Since 1933, the Michigan State Department of Health has been conducting an intensive State-wide effort to eradicate residual typhoid fever, and an interesting report ¹ on the third year of the undertaking (1935) has just been made by Dr. Filip C. Forsbeck, of the State bureau of communicable diseases, who has had charge of the work.

The general plan has been to investigate every case of typhoid fever reported in the State and obtain information regarding the source and mode of infection and other important epidemiological data, to examine contacts, and to locate and treat carriers. As Dr. Forsbeck points out, such a thorough follow-up of typhoid fever cases in part-time territory by the State department of health has certain advantages not directly connected with typhoid eradication. It is learned to what extent cases are diagnosed and not reported, to what extent isolation is enforced or how the rules and regulations regarding communicable diseases on dairy farms are ignored.

A new low typhoid fever death rate for the State of 0.69 per 100,000 population was reported for 1935, as compared with 8.1 in 1920 and

¹ *Michigan Department of Health, Lansing. Typhoid Fever Eradication, 1935. (Mimeographed.)*

1.3 in 1934. Improvement in reporting was shown, with a new record of 10.4 cases reported for each death from typhoid—well above the ratio of 8 cases per death given as a perfect score by the American Public Health Association appraisal form. This improvement is stated to be due largely to the follow-up of positive laboratory reports.

Eight outbreaks occurred in 1935, as compared with seven in 1934 and eight in 1933. Three of these outbreaks were traced to carriers (one to a case). The mode or medium of infection was raw milk in two outbreaks, water in one, and undetermined in two. In these latter five outbreaks the cases were associated, respectively, with a club meeting, a store, a cafe, a boarding house, and a thresher's dinner. In the 4 years 1932-35 about one-fourth of the cases occurred in outbreaks and three-fourths were classified as endemic cases. About 10 percent were traced to milk and about 5 percent to water. There has been some decrease in the relative amount of "outbreak" typhoid.

Forty-two carriers were discovered in 1935 as compared with 44 in 1934 and 29 in 1933—119 had been discovered prior to 1935, making a total of 161 by the end of that year. Thirteen carriers became inactive in 1935, leaving a total of 120 active carriers. Forty-one, or 24.2 percent, of all carriers discovered have been transferred to the inactive list, because of death, cure, being lost, or removal to another State. Of course the ultimate objective, with solution of the carrier problem, is to make this 100 percent. It is important to note that for the fifth consecutive year a new high carrier discovery rate was established—11.8 carriers being discovered per 100 cases, as compared with 9.0 in 1934 and 6.4 in 1933. In 1935 a higher percentage of cases (2.5 percent) were found to remain chronic carriers than in any previous year, but it is not known how much of this increase is due to chance and how much to improved administrative and bacteriologic technique. Five carriers submitted to cholecystectomy in 1935, only three of whom were reported cured. A total of 18 cholecystectomies has been performed, of which 16, or 88.8 percent, resulted in cure. No case of typhoid fever has been traced to any of these 18 persons. It is estimated that (on the basis of Michigan's experience of 0.08 case per carrier year) this action has prevented the occurrence of 40 cases and 4 deaths.

It is pointed out that it is exceptional for a patient to have a positive feces report. The specimens may have been obtained either too late or too early, or the case may not have had a positive feces stage. The sound public health practice of insisting on two negative feces release specimens, which is now required, is indicated by the increase in the percentage of cases finally proved to be chronic carriers.

The highest incidence of typhoid fever in Michigan, according to occupation, is found among trained nurses, the rate for the 4-year period 1932-35 being 45 per 100,000 as compared with a rate of 8.9 for the State. Of the cases occurring among nurses in the years 1933-35, only four of the patients had ever been immunized against typhoid fever, and this group includes trainees and graduates of the State's foremost training schools. Of the four nurses who had been immunized, one started treatment the day before onset, one 8 months before, another had been immunized 8 years before, and the fourth at an unknown period.

FURTHER FIELD STUDIES ON THE SELENIUM PROBLEM IN RELATION TO PUBLIC HEALTH

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In a preliminary field survey made to determine the possibility of selenium intoxication in man in selenium-endemic regions, Smith, Franke, and Westfall (1) reported finding selenium in the urine of a large percentage of the rural population living on seleniferous soil in sections of Wyoming, South Dakota, and Nebraska. No conclusions could be drawn regarding the significance of those findings, because no definite causal relationship could be discovered between the manifestations of ill-health observed and the occurrence and concentration of selenium in the urine. The more or less characteristic features of so-called "alkali" disease in livestock, which are now believed to be due to selenium poisoning, could not be discerned with reasonable certainty in man; nor was there definite information available concerning the nature or sources of selenium or of the actual amounts absorbed. It appeared necessary, therefore, to make a more detailed and more intensive study, first, of the symptomatology in relation to the amount of selenium excreted, and, second, concerning the most probable sources of selenium to which man may be exposed.

With this object in view a relatively small area of four counties was selected from the much larger area covered by the preliminary survey. This area included three counties, Lyman, Tripp, and Gregory, in South Dakota, and adjacent Boyd County in Nebraska. These four counties, lying immediately west of the Missouri River, had been found, in the course of the preliminary survey, to be the worst area with reference to the occurrence of selenium in the soil, the incidence of so-called "alkali" disease in livestock, and the incidence of relatively high concentration of selenium in human urine. Fifty families which had given evidence of the absorption of consid-

erable selenium in our preliminary field survey in April 1936 were selected for this second investigation, made in September of the same year. Specimens of urine were obtained, usually from two or more members of a family, so as to secure data on the excretion level of selenium in those who presented no symptoms as well as in those who presented suggestive symptoms. In addition, samples of foodstuffs entering directly or indirectly into the dietary of the family group were obtained for analysis. These included drinking water, dairy products, eggs, meats, cereals, and vegetables. Owing to the drought conditions which prevailed during the summer of 1936, vegetables were relatively scarce. The cereal grains produced locally, it was learned, are seldom used for human consumption, but are used largely for animal feed; therefore they usually constitute only an indirect source of selenium to the rural family group.

The analytical procedure used for the determination of selenium in these materials was essentially the same as previously described, based on the distillation of the liberated selenium as the volatile bromide, precipitation by reduction, and quantitative estimation of the colloidal precipitate with the nephelometer (1).

The results of this study are shown in the accompanying tables.

Tables 1-A, 1-B, and 1-C summarize the data on the selenium concentration in the urine, the age of the individual, and whatever symptoms appeared worthy of note in 100 subjects representing 50 families. There are several points of interest in connection with these tables. The urinary concentration of selenium appears generally fairly uniform for each family group, irrespective of the age or other conditions of the individuals comprising the family. In only five families, nos. 7, 85, 14, 16, and 60, were there marked individual differences in the urinary concentration of selenium. Neither age nor any other obvious factor would seem to account for it. Whether a mere coincidence or not, it seems strange that in every instance the low values were found in the urines of the female members of the family. Barring the possibility of some differences in degree of diuresis which might easily account for differences in the selenium concentration in the urine, individual peculiarities in dietary habits would seem to be the most probable explanation; for, as will be shown later, some foodstuffs on any given seleniferous farm may carry considerable selenium while others contain little or none.

TABLE 1-A.—Urinary selenium and symptomatology in 22 families in Lyman County, S. Dak.

| Family | | Urinary selenium, micrograms per 100 cc | Age and symptoms |
|--------|----------|---|---|
| No. | Initials | | |
| 22 | H. W. B. | 21 (28) ¹ | 55. Icteric pigmented (chloasma?) skin, bad teeth. |
| 23 | T. C. | 20 | 25. History of pulmonary tuberculosis. |
| | | 12 | 31. No definite symptoms. |
| 83 | H. F. C. | 30 | 58. No definite symptoms. |
| | | 13 | 50. Bad teeth. |
| | | 38 (55) | 46. Symptoms of cardio-renal disease. |
| | | 40 | 7. History of recurrent "sick-spells". |
| | | 108 ² | 22. History of chronic indigestion. |
| 86 | J. D. | 43 (23) | 14. Sallow, history of chronic indigestion. |
| | | 61 | 44. History of recurrent attacks of indigestion and "biliousness". |
| 90 | W. D. | 48 (73) | 5. No symptoms. |
| 9 | J. D. | 18 | 12. Sallow, herpes, subject to carbuncles. |
| | | 20 | 35. Bad teeth. |
| 89 | E. D. | 88 | 62. Icteric skin, bad teeth. |
| 7 | A. J. E. | 105 (120) | 68. Bad teeth, icteroid skin, history of chronic indigestion. |
| | | 48 (50) | 61. Icteric skin, bad teeth, symptoms of cardio-renal disease. |
| 85 | F. F. | 128 | 42. Chronic indigestion. |
| | | 31 (55) | 36. Acneiform eruption. |
| 5 | B. F. | 25 | 28. Had been jaundiced, was recently operated on for suspected cholecystitis. |
| | | 36 | 14. Sallow. |
| 24 | B. H. | 20 | 50. Rheumatoid arthritis. |
| | | 30 | 52. Chronic indigestion. |
| | | 36 | 6. No symptoms. |
| 80 | J. H. | 33 | 48. Bad teeth, icteroid skin, chronic indigestion. |
| | | 27 | 15. No symptoms. |
| 109 | H. L. | 19 | 58. Icteric skin. |
| | | 54 | 66. Chronic indigestion, bad teeth. |
| 27 | I. M. | 29 (26) | 12. Sallow, bad teeth. |
| | | 56 | 8. Sallow, acneiform eruption. |
| 12 | F. W. M. | 40 | 44. Bad teeth, icteroid skin. |
| | | 73 | 40. Sallow. |
| | | 27 (38) | 16. Acneiform eruption. |
| 28 | L. E. N. | 63 (76) | 56. No definite symptoms. |
| 91 | G. R. | 25 | 42. Bad teeth, rheumatoid arthritis. |
| | | 51 (68) | 10. Sallow. |
| | | 32 | 13. Sallow. |
| 14 | J. F. S. | 21 | 68. Icteric skin, chronic indigestion (ulcer?). |
| | | 49 | 25. No definite symptoms. |
| | | 106 | 63. Chronic indigestion (ulcer?), bad teeth, icteroid and pigmented (chloasma?) skin. |
| 107 | C. J. T. | 94 | 40. Bad teeth, history of chronic indigestion and "bilious attacks". |
| 97 | F. H. | 25 | 10. Vitiligo. |
| | | 27 | 7. No symptoms. |
| | | 32 | 11. No symptoms. |
| 106 | J. W. R. | 25 | 46. History of chronic indigestion and recurrent jaundice. |
| 108 | E. S. | 20 | 48. Icteric skin and mucous membranes. |

¹ Figures in parentheses indicate urinary selenium found in the same individual 5 months previously.

² Member of same family, but for past year residing on neighboring farm.

The figures in parentheses in the third column of tables 1-A, 1-B, and 1-C indicate the urinary selenium concentration found in the same individuals 5 months previously. Such data are available for 28 individuals representing 22 families. Analysis of these figures indicates a fairly uniform trend, with relatively little change, suggesting that the absorption of selenium on any given farm at different times of the year remains fairly constant. In 5 of the 28 individuals (families 78, 74, 19, and 46) a rather marked increase in the urinary selenium was noted in September over that found in April. It is probable that had there been more rainfall during the summer and a more abundant supply of garden vegetables there might have been more such differences.

TABLE 1-B.—*Urinary selenium and symptomatology in 18 families, Tripp and Gregory Counties, S. Dak.*

| Family | | Urinary selenium, micrograms per 100 cc | Age and symptoms |
|--------|----------|--|--|
| No. | Initials | | |
| 70 | H. J. D. | 34 | 69. No definite symptoms. |
| 78 | W. F. | 100 (78) | 52. Bad teeth, slightly icteroid skin. |
| | | 114 (39) | 53. Bad teeth, dermatitis, chronic indigestion. |
| 75 | M. K. | 46 (25) | 50. Atrophic nails, bad teeth, icteroid skin, vitiligo. |
| | | 65 | 48. No symptoms. |
| 74 | B. N. | 103 (28) | 12. Sallow. |
| | | 110 | 23. Bad teeth, icteroid skin. |
| 76 | T. T. | 43 (65) | 52. Icteroid skin, chronic indigestion (duodenal ulcer?). |
| | | 73 | 54. Bad teeth, pathological nails. |
| 16 | F. B. | 105 | 59. Icteroid skin, chronic indigestion. |
| | | 133 (111) | 29. Bad teeth, icteroid skin, chronic indigestion. |
| | | 36 | 55. Icteroid skin. |
| 116 | M. C. | 23 | 41. History of recurrent jaundice and chronic indigestion. |
| | | 35 | 47. Bad teeth, sallow. |
| 117 | H. C. | 43 | 18. No symptoms. |
| | | 53 | 12. Pallid, recurrent attacks of indigestion. |
| 57 | W. DeJ. | 65 (73) | 14. No symptoms. |
| | | 25 | 10. No symptoms. |
| 62 | T. M. D. | 35 (32) | 15. No symptoms. |
| | | 48 | 5. No symptoms. |
| 21 | F. M. | 34 | 19. No symptoms. |
| | | 25 | 65. Bad teeth, icteroid skin, rheumatoid arthritis. |
| 51 | H. J. | 20 | 7. No symptoms. |
| | | 27 (35) | 5. No symptoms. |
| 52 | C. K. | 26 (53) | 5. No symptoms. |
| 19 | C. B. K. | 198 (80) | 51. Icteroid skin, bad teeth, chronic indigestion. |
| | | 124 (47) | 44. Icteroid skin, chronic indigestion. |
| 64 | L. B. L. | 64 (45) | 4. Pallid. |
| 60 | G. P. | 35 | 23. Pathological nails. |
| | | 117 | 6. Pallid. |
| 68 | G. S. | 29 | 45. Hyperthyroidism. |
| | | 34 (24) | 60. Bad teeth. |
| 56 | L. C. T. | 28 | 11. Bad teeth, sallow. |

TABLE 1-C.—*Urinary selenium and symptomatology in 10 families, Boyd County, Nebr.*

| Family | | Urinary selenium, micrograms per 100 cc | Age and symptoms |
|--------|----------|--|--|
| No. | Initials | | |
| 33 | W. D. A. | 30 | 45. Icteroid skin, history of recurrent jaundice. |
| | | 35 | 27. Bad teeth. |
| 113 | L. A. | 20 | 39. Chronic indigestion. |
| | | 20 | 33. No definite symptoms. |
| | | 24 | 76. Icteroid skin. |
| 37 | C. C. | 35 | 45. Icteroid skin, history of "bilious attacks." |
| | | 32 | 47. Icteroid and pigmented (chloasma?) skin. |
| 34 | E. H. | 65 | 35. Icteroid skin, chronic indigestion. |
| | | 23 | 33. History of recurrent attacks of indigestion. |
| | | 47 | 7. Had appendectomy with no apparent benefit. |
| 118 | E. H. | 64 | 22. History of chronic indigestion (gastric ulcer?). |
| 47 | H. M. | 98 | 35. History of chronic indigestion. |
| | | 80 | 7. Pallid. |
| | | 70 (66) | 6. Pallid. |
| 46 | E. M. | 63 | 34. Icteroid skin, bad teeth. |
| | | 88 (38) | 12. Recurrent attacks of indigestion, appendectomy with no apparent benefit. |
| 45 | H. M. | 25 | 21. No symptoms. |
| 44 | J. P. | 43 (63) | 24. No definite symptoms. |
| | | 55 | 57. Icteroid skin. |
| 38 | O. P. | 38 | 22. Sallow, recurrent attacks of indigestion. |
| | | 45 | 33. No symptoms. |
| | | 56 | 62. Bad teeth, icteroid skin, history of recurrent attacks of indigestion with jaundice. |

Regarding the symptomatology, the observations detailed in tables 1-A, 1-B, and 1-C may be summarized by saying that the conditions seen in the 100 individuals presented the following frequency:

| | |
|---|----|
| No obvious symptoms..... | 24 |
| Gastrointestinal disturbances..... | 31 |
| Bad teeth..... | 27 |
| Icteroid discoloration of the skin..... | 28 |
| History of recurrent jaundice..... | 5 |
| Vitiligo..... | 2 |
| Pigmentation of the skin (chloasma?)..... | 3 |
| Sallow and pallid color, especially in younger individuals..... | 17 |
| Dermatitis..... | 5 |
| Rheumatoid arthritis..... | 3 |
| Pathological nails..... | 3 |
| Cardiorenal disease..... | 2 |

None of the above-listed symptoms, seen in 76 percent of the entire group, can be regarded as specific of selenium poisoning, and it is not certain that any one is the direct result of continual ingestion of selenium. In the light of the experimental data recently published on the chronic toxicity and pathology of selenium in lower animals (2), we believe that the high incidence of gastrointestinal disturbances is significant. The incidence of jaundice and frank symptoms of hepatitis is probably too low for selenium to be definitely implicated, though in chronic poisoning in experimental animals with doses of inorganic selenium probably not far removed from those absorbed in the present group microscopic lesions of the liver are frequent (2). The high incidence of icteroid discoloration of the skin, we believe, is in some way related to the ingestion of selenium, though the precise relationship is not clear. In experimental animals with mild or moderate chronic selenium poisoning (both inorganic as well as organic selenium), marked bilirubinemia has not been observed so far.¹ Whether or not other pigments are involved is not yet clear. The high incidence of bad teeth seems equally uncertain, for no gross changes in tooth structure of experimental animals in chronic selenium poisoning have as yet been found. Whether or not any of the cases have blood changes of a nature often seen in experimental animals in chronic selenium poisoning will remain a matter of conjecture until the subject is studied. The other conditions enumerated seem scarcely frequent enough to be associated with selenium.

A critical study of the data would seem to indicate, on the whole, that the continuous exposure to small doses of organic selenium is not as harmful as might be expected from the toxic nature of the element in the form of selenite or selenate. The evidence as to the relative toxicity in rats of inorganic selenium and the organic variety as it occurs naturally in foodstuffs is conflicting (3, 4, 5). It is possible that the relative lethal concentrations of the two types of

¹ Unpublished data.

selenium in rats may be quite different from the relative concentrations required to produce organic or functional damage in tissues and organs of higher animals. The former has little bearing on the human problem, the latter an important one. Experimental data which we have recently presented indicate that in chronic poisoning with inorganic selenium in cats the excretion level of selenium in the urine bears a rather definite relationship to the daily dose ingested, so that for doses ranging between 0.02 and 0.25 mg of selenium per kilo per day the concentration percent of selenium in the urine under normal conditions of diuresis is from 150 to a little over 200 percent of the daily per kilogram dose (6). Further observations with naturally occurring organic selenium now in progress seem to indicate a somewhat lower excretion level and a correspondingly greater storage of selenium in the tissues.¹ We may reasonably assume, therefore, that our subjects detailed in tables 1-A, 1-B, and 1-C have been absorbing probably continually in the neighborhood of from 0.01 to 0.1, and possibly as much as 0.2 mg per kilo per day. None of the subjects of our study has lived on seleniferous farms less than 3 years, and the great majority have lived on such farms from 10 to 40 years. Since the experimental evidence is against acquired tolerance for selenium and rather for its cumulative effects (2), the only plausible explanation left is the probable lower toxicity of organic selenium compared with inorganic.

THE SOURCES OF SELENIUM

The analytical data on the most probable sources of selenium to which man may be exposed in the seleniferous region studied are outlined in tables 2, 3, and 4. In table 2 the incidence of selenium in drinking water, milk, eggs, and meat is shown. It will be seen that out of 44 samples of drinking water from wells varying in depth from 20 to several hundred feet only about 23 percent showed the presence of selenium in the relatively small amounts of from 5 to 33 micrograms per 100 cc. No definite relationship between the depth of the well and the selenium content of the water could be discovered. Milk, of which 50 samples were obtained, showed some selenium in every instance, the amounts varying usually from 16 to 127 micrograms per 100 g. In a few instances milk was obtained from so-called "alkalied" cows and its selenium content compared with the milk pooled from the entire herd of the farm, but no constant marked differences were noted. Eggs and meats have invariably shown the highest concentration and the highest incidence of contamination with selenium. Unfortunately but few specimens of meat were obtained, for at the time when the field survey was conducted it did not appear probable that meats would constitute an important source

¹ Unpublished data.

of selenium. We had had at that time some information on the distribution and storage of selenium in the tissues of animals in chronic poisoning with inorganic selenium and our results had indicated that only small amounts of selenium could be found in muscle (6). Since then we have been accumulating data on the storage of selenium in the tissues of animals in chronic poisoning with selenium-bearing cereal grains and the experimental evidence¹ fully confirms the field findings concerning the relatively high selenium content of meats. Of the six samples of meat secured, four samples of canned or salted pork contained 117, 160, 330, and 800 micrograms per 100 g, respectively, one sample of raw chicken muscle contained 219, and one sample of cooked lean beef contained 222 micrograms per 100 g. All the meat samples were, of course, from local stock slaughtered for the exclusive use of the family group.

TABLE 2.—*The selenium content of water, milk, eggs, and meat*

| Material | Total number of samples | Number of samples showing— | | | Micrograms of selenium per 100 cc or g | |
|------------|-------------------------|----------------------------|--------|----------|--|---------|
| | | No selenium | Traces | Positive | Minimum | Maximum |
| Water..... | 44 | 20 | 14 | 10 | 5 | 33 |
| Milk..... | 50 | 0 | 6 | 44 | 16 | 127 |
| Eggs..... | 32 | 0 | 0 | 32 | 25 | 914 |
| Meats..... | 6 | 0 | 0 | 6 | 117 | 800 |

Of the 32 samples of eggs, 22 percent contained less than 100 micrograms of selenium per 100 g, and 78 percent contained it in excess of 100 micrograms per 100 g. It seemed of interest to ascertain the distribution of selenium in the different parts of the egg. Accordingly, separate analyses were made in several instances of the white, yolk, and shell, with the following rather inconstant results.

Concentration of selenium in parts of egg expressed in micrograms per 100 grams

| Sample | White | Yolk | Shell |
|--------|-------|------|-------|
| 1..... | 110 | 119 | ----- |
| 2..... | 390 | 226 | ----- |
| 3..... | 500 | 695 | 402 |
| 4..... | 178 | 91 | 307 |
| 5..... | 128 | 86 | Trace |
| 6..... | 120 | 103 | ----- |

Table 3 summarizes the selenium content of bread and cereal grains. Of the 11 samples of bread it will be noted that only 6 contained estimable amounts of selenium, and it is not certain whether the small amounts of selenium found had been present in the flour or were added to the flour with the milk, eggs, etc., often used in baking. In

¹ Unpublished data.

every instance the flour had been purchased from local mills.² The other cereals enumerated in this table are of no direct importance, for only in exceptional instances were they used for human consumption. Even wheat is not as a rule used directly, but is usually exchanged for flour at some conveniently located mill where the selenium content of the grain may be reduced by dilution to a small or even negligible amount. Since all the cereal grains are, however, used for animal feed, the figures in the table illustrate the manner in which selenium finds its way into the human body.

TABLE 3.—*The selenium content of bread and cereal grains*

| Material | Total number of samples | Number of samples showing— | | | Micrograms of selenium per 100 cc or g | |
|-------------|-------------------------|----------------------------|--------|----------|--|---------|
| | | No selenium | Traces | Positive | Minimum | Maximum |
| Bread..... | 11 | 0 | 5 | 6 | 25 | 100 |
| Wheat..... | 8 | 0 | 1 | 7 | 115 | 1,880 |
| Corn..... | 21 | 1 | 0 | 20 | 100 | 1,490 |
| Barley..... | 7 | 0 | 0 | 7 | 165 | 575 |
| Oats..... | 3 | 0 | 0 | 3 | 200 | 1,000 |
| Rye..... | 3 | 0 | 0 | 3 | 87 | 350 |

Table 4 shows the incidence and occurrence of selenium in vegetables obtained from a few gardens of the 50 farms comprising this study. Some of the samples were canned from the 1935 season and some were fresh from the garden. In a number of instances several different varieties were obtained from the same garden patch to ascertain whether or not the selenium content of closely growing vegetables on a common soil is the same. The results seem to indicate that not all plants have the same capacity for absorbing selenium from a given soil. Thus it would seem that such vegetables as potatoes, cucumbers, beets, tomatoes, and carrots are generally low in selenium, while cabbage, rutabaga, and especially onions can concentrate selenium to a very high degree. The number of samples we were able to obtain from any one place was limited, and we cannot make a very positive general assertion on this point, but our observations do seem to confirm Beath's findings to the effect that certain native range plants such as astragalus, oenopsis, woody aster, and others can concentrate selenium to a far greater extent than certain other range plants growing alongside of them (7).

² 5 had been purchased from Gregory Mills and 6 from Trisco Mills.

TABLE 4.—*The selenium content of vegetables*

| Material | Total number of samples | Number of samples showing— | | | Micrograms of selenium per 100 cc or g | |
|---------------------|-------------------------|----------------------------|--------|----------|--|---------|
| | | No selenium | Traces | Positive | Minimum | Maximum |
| Cucumber..... | 12 | 2 | 3 | 7 | 12 | 55 |
| Potato..... | 12 | 0 | 2 | 10 | 24 | 94 |
| Beets..... | 13 | 1 | 4 | 8 | 32 | 118 |
| Tomato..... | 17 | 1 | 3 | 13 | 18 | 122 |
| Carrots..... | 10 | 0 | 4 | 6 | 43 | 130 |
| Peas and beans..... | 9 | 0 | 3 | 6 | 38 | 204 |
| Cabbage..... | 5 | 0 | 0 | 5 | 23 | 452 |
| Rutabaga..... | 2 | 0 | 0 | 2 | 172 | 600 |
| Onion..... | 19 | 0 | 1 | 18 | 36 | 1,780 |

In table 5 we have attempted to correlate the urinary concentration of selenium found in human subjects on a given farm with the selenium concentration of such samples of foodstuffs as we have been able to secure. The results show very clearly that the selenium content of the foodstuffs entering directly or indirectly into the human dietary determines the extent of selenium absorption in man, and that the chief sources of selenium in man are the animal foods, such as meats, eggs, and milk, vegetables playing only a secondary and variable role. Indeed it would seem that the selenium content of the urine of man is a very good criterion of the occurrence and extent of selenium on a given farm.

TABLE 5.—*Relation of urinary selenium to food selenium, micrograms per 100 cc or g*

| Family no. | Urinary selenium, micrograms per 100 cc | Food selenium, micrograms percent (figures in parentheses show number of samples analyzed) | | | | |
|------------|---|--|-------|-------|--------------------|----------------|
| | | Milk | Eggs | Meat | Vegetables | Cereal grain |
| 97 | 25, 27, 32..... | Trace | 57 | ----- | Trace (7)..... | Trace (1). |
| 51 | 20, 27..... | ----- | 135 | 160 | 36 (1)..... | 190 (1). |
| 22 | 20, 21..... | 36 | 140 | ----- | 41-74 (2)..... | Trace (1). |
| 113 | 20, 20, 24..... | 25 | 145 | ----- | 30-82 (2)..... | 0 (1). |
| 52 | 26..... | 25 | 32 | ----- | Trace-58 (4)..... | ----- |
| 83 | 13, 38, 40..... | 34 | ----- | 219 | ----- | ----- |
| 27 | 29, 56..... | 22 | ----- | 222 | ----- | ----- |
| 76 | 43, 73..... | 35 | 408 | 330 | 27-105 (5)..... | ----- |
| 107 | 94..... | 39 | 365 | ----- | Trace-18 (2)..... | ----- |
| 47 | 70, 80, 98..... | 57 | 308 | ----- | 23-204 (5)..... | 330 (1). |
| 74 | 103, 110..... | Trace | 412 | ----- | ----- | 45-100 (2). |
| 78 | 100, 114..... | 36 | 504 | ----- | 103-1,780 (2)..... | 360 (1). |
| 16 | 105, 36, 133..... | 114 | ----- | ----- | 242 (1)..... | 250-1,880 (5). |
| 19 | 124, 198..... | 127 | ----- | 800 | 126 (1)..... | 420-1,000 (3). |

SUMMARY AND CONCLUSIONS

A field study was made during September 1936 of a selected group comprising 50 rural families in a highly seleniferous area in 4 counties of South Dakota and Nebraska.

One hundred urine specimens from as many subjects were analyzed for selenium. The selenium concentration for the whole group varied from 20 to 198 micrograms per 100 cc. There was, as a rule, little variation in the urinary concentration of selenium for the several members of the same family or for the same individual at different times, thus indicating that the excretion level of selenium in man is a fairly reliable index of the availability of selenium and of the hazard to which he is exposed.

Outside of a high incidence of symptoms pointing to gastric or intestinal dysfunction, and a few instances of apparent hepatic dysfunction, both probably the result of continual selenium ingestion, no other evidence of ill health was seen that could be ascribed to selenium with any degree of certainty.

Analysis of many samples of locally produced foodstuffs which enter directly or indirectly into the human dietary indicates that meat, eggs, and milk, and vegetables when available, constitute the most important and most constant sources of selenium to which man is exposed in the selenium endemic region studied.

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HOW EXPENDITURES FOR SELECTED PUBLIC HEALTH SERVICES ARE APPORTIONED¹

By JOSEPH W. MOUNTIN, *Surgeon, United States Public Health Service*

When assembling and analyzing data designed to show how expenditures for selected public health services are apportioned, it is necessary to operate within limits that are clearly set forth, since programs of public health may differ among communities as to content and to method of administration. The variations in actual patterns of organizations arise from an interplay of two main factors: difference in the assignment of responsibilities to particular agencies and difference in the emphasis that is placed on specific services. Another factor which complicates the analysis is the difficulty of determining the population over which costs and services are actually distributed.

Composites of personnel and of expenditures for all agencies in counties have been chosen in preference to corresponding indexes for the minor civil divisions, because agencies tend to have overlapping

¹ From the Division of Public Health Methods, National Institute of Health.

jurisdictions. The services under consideration are those health-promotion activities that commonly constitute the program of health departments and voluntary health agencies. In order that there may be a basis for comparison, unusual items that entail disproportionately high expenditures are omitted. In the excluded category are collection of refuse, building inspection, medical relief, and the operation of hospitals and allied institutions. Obviously no account can be taken of social action in fields of general welfare that may contribute only indirectly to personal or community health.

The 94² counties comprising the group appearing in this analysis were limited to those which included areas chosen to satisfy the requirements of the National Health Inventory in its survey of chronic diseases rather than to present schemes of health administration commonly found in this country. The counties were selected so as to give representation to different social, economic, and industrial conditions and to encompass whatever variation in illness incidence that may be experienced throughout the United States. The sample must be accepted as being weighted with populous counties and those having a high percentage of urban inhabitants. In these counties, however, the lesser political units such as villages, boroughs, and townships are well represented.

TABLE 1.—*Distribution of expenditures for selected public health services in 94 counties according to population of county and type of agency with administrative responsibility*

| Population group | Number of counties | Population | Total expenditures | Per capita expenditures | | | |
|-----------------------|--------------------|--------------|--------------------|-------------------------|--------------------|-------------------------|-----------------------|
| | | | | Total | Health departments | Other official agencies | Non-official agencies |
| All groups..... | 94 | 33, 978, 479 | \$29, 310, 895 | \$0. 86 | \$0. 52 | \$0. 11 | \$0. 23 |
| Under 20,000..... | 15 | 191, 274 | 103, 355 | . 54 | . 32 | . 14 | . 08 |
| 20,000-59,999..... | 25 | 856, 580 | 340, 573 | . 40 | . 23 | . 13 | . 04 |
| 60,000-99,999..... | 14 | 1, 020, 428 | 503, 476 | . 48 | . 31 | . 11 | . 07 |
| 100,000-219,999..... | 13 | 2, 244, 347 | 1, 781, 276 | . 79 | . 41 | . 17 | . 21 |
| 250,000-499,999..... | 13 | 4, 919, 583 | 3, 575, 381 | . 73 | . 43 | . 12 | . 18 |
| 500,000 and over..... | 14 | 24, 746, 267 | 23, 006, 834 | . 93 | . 57 | . 10 | . 26 |

During the fiscal year ended in 1936, a total of approximately \$29,500,000 was expended by all agencies of the 94 counties. This amount distributed over the 34 million inhabitants is equivalent to about 86 cents per capita. From table 1 the reader will observe that, with one apparent exception, the more populous groups of counties lead in per capita expenditures. The apparent exception, which occurs in the group lowest in population, can be attributed to unusual expenditures by a few contained counties that receive large grants-in-aid from an endowment. Generally speaking, public health or-

² Five counties included in New York City have been classified as a single county area.

ganization reaches its highest development in cities of large size. The health program of a large city tends to have a leavening influence on health for the whole county of which the city is a part, since many urban services extend beyond the limits of the large city.

In comparing the combined expenditures of this group of counties with the outlays for similar public health services by counties entered in the Inter-Chamber of Commerce Health Conservation Contest³ one finds that the Health Inventory counties exceed by about 16 cents per capita. The Contest counties as a whole are less urban in character than the Health Inventory group. Another part of the difference may be attributed to the practice of excluding from the Contest counties portions not under the jurisdiction of the county health department. Counties containing large cities are affected in particular by this procedure. While the Health Inventory counties devote larger sums to public health than do those reported by the Contest, still it is well to point out that the Health Inventory counties expend only about half the amount of money per capita commonly regarded⁴ as necessary for the support of those elementary public health services which form the basis of this comparison.

Notwithstanding the fact that the services under consideration are well defined in character and generally accepted as being of primary interest to health departments, there appears to be a wide dispersion of responsibility for their administration. The extent of this dispersion is suggested by data in table 1. Towards defraying a gross per capita expenditure of 86 cents, governments contribute 52 cents through their health departments and 11 cents through other official agencies, while nonofficial agencies supply the remaining 23 cents. Among those classed as "Other official agencies," boards of education lead in sums devoted to health work. Public welfare departments rank second in order, yet the amount of funds at their disposal for health work is considerably below that of educational authorities. Voluntary agencies submitted information which portrays a wide range of programs covering services that exist in varying combinations. When these agencies are classified as to groups and interests, nursing organizations are found to report the largest expenditures. Second place in some counties is occupied by agencies expressing major interest in tuberculosis, while in others child health occupies this position. Maternity hygiene, mental hygiene, and social hygiene each have a large number of sponsors, but the sums at their disposal are not large.

Earlier in the paper it was pointed out that per capita expenditures tend to increase as counties are found in the higher population brackets.

³ Walker, W. F., and Feldman, L.: Consolidated county expenditures for selected public health service. *Am. J. Pub. Health*, vol. 27, no. 2, February 1937.

⁴ Hiseock, Ira V.: Community health organization. *The Commonwealth Fund*, New York, N. Y. 1932.

Agencies of the three classes, health departments, other official, and nonofficial, share somewhat disproportionately in these increases. The unusually high per capita figures reported by the group of counties below 20,000 population have already been explained. After excluding this group of counties, which may be regarded as atypical, there is found a general upward trend in expenditures by both the health departments and nonofficial agencies. This trend is very definitely exaggerated in the group containing 500,000 or more inhabitants. The practice with regard to proportionate assignment of responsibility among agencies of different classes would appear to be fairly uniform among the counties in various population groups. In a few instances, however, smaller counties discharge more services through official agencies other than health departments, but this practice is not so apparent when all small counties are considered as a group. The parallelism in rates of expenditures by health departments and by nonofficial agencies for the counties of different sizes is not in keeping with the common impression that activities of voluntary agencies tend to compensate for deficiencies in the programs supported by taxation.

Another item of particular interest to health administrators is the practice pursued under varying circumstances with regard to proportionate allotments for operating expenses and for salaries of employees presenting qualifications of different types. Data bearing on these points may be found in tables 2 and 3. One shows the variation in distribution of expenditures as it may be affected by population of the county, and the other describes the practice followed by agencies operating under different auspices.

TABLE 2.—*Distribution of expenditures for selected health services in 94 counties according to population group of counties and purpose of expenditures*

| Population group | Number of counties | Total expenditures | Percentage distribution of expenditures | | | | | |
|-----------------------|--------------------|--------------------|---|----------|--------|------------|--------|-----------------|
| | | | Salary | | | | | Operating costs |
| | | | Physicians | Dentists | Nurses | Inspectors | Others | |
| All counties..... | 94 | \$29, 310, 895 | 0. 14 | 0. 02 | 0. 30 | 0. 08 | 0. 25 | 0. 21 |
| Under 20,000..... | 15 | 103, 355 | . 24 | . 03 | . 30 | . 06 | . 10 | . 27 |
| 20,000-59,999..... | 25 | 340, 573 | . 23 | . 01 | . 32 | . 06 | . 15 | . 23 |
| 60,000-99,999..... | 14 | 503, 476 | . 17 | . 02 | . 24 | . 08 | . 16 | . 33 |
| 100,000-249,999..... | 13 | 1, 781, 276 | . 15 | . 04 | . 35 | . 08 | . 19 | . 19 |
| 250,000-499,999..... | 13 | 3, 575, 381 | . 13 | . 01 | . 27 | . 07 | . 25 | . 27 |
| 500,000 and over..... | 14 | 23, 006, 834 | . 14 | . 02 | . 30 | . 09 | . 25 | . 20 |

In this group of 94 counties approximately 80 percent of the expenditures is allotted to salaries and the remainder to operation. Operating expenses include, as a rule, such items as transportation, communication, office supplies, and materials used in the conduct of a laboratory. Rent may be a sum of considerable importance in the

budget of voluntary agencies; however, this is seldom true of official agencies since they usually are housed in public buildings. In the smaller counties, agencies allot proportionately more of their funds for operating expenses than do those in more populous classes. This is to be expected, since many administrative costs are somewhat fixed, hence they tend to be relatively high in small budgets. About 30 percent of salary funds is set apart for nurses; this is by far the largest group item in the salary budget. The percentage is fairly consistent among counties of different classes. The salary item for employees designated "Others" follows in the order of magnitude. This is a large but varied group ranging in skill from janitors to administrators and laboratory workers. The higher development of laboratory, clerical, and statistical services in the populous counties accounts in a large measure for the greater proportion of expenditures devoted to salaries of groups designated as "Others."

TABLE 3.—*Distribution of expenditures for selected health services in 94 counties according to type of agency in control and purpose of expenditures*

| Type of agency | Total budget | Percentage distribution of expenditures | | | | | |
|-------------------------|--------------|---|----------|--------|------------|--------|-----------------|
| | | Salary | | | | | Operating costs |
| | | Physicians | Dentists | Nurses | Inspectors | Others | |
| All agencies..... | \$29,310,895 | 0.14 | 0.02 | 0.30 | 0.08 | 0.25 | 0.21 |
| Health departments..... | 17,631,904 | .15 | .01 | .23 | .14 | .28 | .19 |
| Other governmental..... | 3,845,204 | .27 | .04 | .42 | .01 | .15 | .11 |
| Nongovernmental..... | 7,833,787 | .05 | .02 | .40 | .01 | .21 | .32 |

When the proportionate distribution of health budgets is studied in relation to the policy of various agencies, distinct differences are to be noted. (See table 3.) As compared with agencies of other types, health departments favor inspectors and employees designated as "Others." This merely expresses greater responsibilities for sanitation programs and the operation of laboratories. It must be understood that health departments are the largest employers of physicians and nurses, even though the percentage of their budgets assigned for these salaries may not be as great as that reported by other agencies. Such proportionately low operating costs as are reported from health departments may be explained in part by the large size of those departments when compared with agencies in other categories. Those agencies designated as "Other governmental" rank first in the proportion of funds devoted to salaries of physicians and nurses. School boards dominate the picture in this agency group, and they are known to employ nurses and physicians almost exclusively. The high percentage of funds that nongovernmental agencies also devote to nurses

is to be expected since this group is made up largely by visiting nurse associations, and agencies especially interested in child care. Such agencies would be expected to have high operating costs since they must transport their field nurses, pay rent, and furnish large quantities of materials used in caring for patients both in clinics and in homes.

Especially the person concerned with health administration will be interested in the following points that are brought out by the foregoing analysis: Responsibility for public health service rests with so many agencies that there must be considerable loss in effectiveness of program and in economy of administration. In a group of 94 counties, distinctly above the average in resources, expenditures for selected public services fell below amounts regarded as necessary to support adequate organizations. Salaries of public health nurses account for nearly one-third of all funds expended. Both governmental agencies other than health departments and those which are nonofficial devote a particularly high percentage of their funds to nursing. Practically all sanitary inspectors are employed by health departments. Health departments, too, support most of the laboratory service and employ more persons for clerical positions in proportion to total employees than is true of other agencies. Nonofficial agencies, however, report the highest operating costs. Other data not presented in this paper show that the distribution of expenditures is determined very largely by the various combinations of items that comprise the programs of agencies having different sets of responsibilities.

DEATHS DURING WEEK ENDED SEPT. 11, 1937

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

| | Week ended Sept. 11, 1937 | Correspond- ing week, 1936 |
|---|------------------------------|-------------------------------|
| Data from 86 large cities of the United States: | | |
| Total deaths..... | 6,883 | 6,976 |
| Average for 3 prior years..... | 6,950 | |
| Total deaths, first 36 weeks of year..... | 316,367 | 316,804 |
| Deaths under 1 year of age..... | 483 | 501 |
| Average for 3 prior years..... | 515 | |
| Deaths under 1 year of age, first 36 weeks of year..... | 20,351 | 20,068 |
| Data from industrial insurance companies: | | |
| Policies in force..... | 69,801,191 | 68,415,419 |
| Number of death claims..... | 8,943 | 8,880 |
| Death claims per 1,000 policies in force, annual rate..... | 6.7 | 6.8 |
| Death claims per 1,000 policies, first 36 weeks of year, annual rate..... | 10.0 | 10.1 |

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 18, 1937, and Sept. 19, 1936

| Division and State | Diphtheria | | Influenza | | Measles | | Meningococcus meningitis | |
|-----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 |
| New England States: | | | | | | | | |
| Maine..... | 3 | 1 | 1 | | | 8 | 0 | 3 |
| New Hampshire..... | | 1 | | | | 1 | 0 | 0 |
| Vermont..... | 2 | | | | 1 | 3 | 0 | 0 |
| Massachusetts..... | | 7 | | | 10 | 17 | 1 | 1 |
| Rhode Island..... | | | | | 2 | | 0 | 0 |
| Connecticut..... | 4 | | 1 | 2 | 2 | 3 | 0 | 0 |
| Middle Atlantic States: | | | | | | | | |
| New York..... | 10 | 18 | 16 | 12 | 74 | 36 | 5 | 4 |
| New Jersey..... | 12 | 10 | 4 | 8 | 20 | 14 | 2 | 1 |
| Pennsylvania..... | 22 | 14 | | | 84 | 16 | 7 | 2 |
| East North Central States: | | | | | | | | |
| Ohio..... | 12 | 14 | 15 | 8 | 55 | 12 | 7 | 1 |
| Indiana..... | 13 | 15 | 8 | 7 | 3 | 2 | 0 | 1 |
| Illinois..... | 23 | 28 | 8 | 4 | 44 | 10 | 1 | 3 |
| Michigan..... | 12 | 13 | | | 14 | 14 | 3 | 1 |
| Wisconsin..... | 5 | 4 | 20 | 6 | 40 | 17 | 1 | 0 |
| West North Central States: | | | | | | | | |
| Minnesota..... | 2 | 5 | | | 5 | 6 | 0 | 0 |
| Iowa..... | 2 | 2 | | | 3 | 3 | 0 | 0 |
| Missouri..... | 21 | 6 | 11 | 18 | 43 | | 2 | 0 |
| North Dakota..... | 1 | | 2 | 4 | 2 | | 1 | 0 |
| South Dakota..... | 1 | | | | | 2 | 1 | 0 |
| Nebraska..... | | 3 | | | | 1 | 0 | 0 |
| Kansas..... | 4 | 9 | 3 | | 5 | 1 | 0 | 0 |
| South Atlantic States: | | | | | | | | |
| Delaware..... | | | | | | 2 | 1 | 0 |
| Maryland..... | 6 | 3 | 4 | 2 | 5 | 7 | 2 | 3 |
| District of Columbia..... | 2 | 5 | | | | | 0 | 0 |
| Virginia..... | 32 | 23 | | | 6 | 4 | 1 | 2 |
| West Virginia..... | 16 | 5 | 18 | 2 | 9 | 2 | 3 | 4 |
| North Carolina..... | 72 | 53 | | | 18 | 6 | 0 | 2 |
| South Carolina..... | 18 | 27 | 104 | 94 | 7 | | 1 | 0 |
| Georgia..... | 30 | 27 | | | | | 0 | 1 |
| Florida..... | 17 | 5 | | 8 | 6 | | 1 | 0 |
| East South Central States: | | | | | | | | |
| Kentucky..... | 33 | 11 | 7 | | 8 | 13 | 2 | 3 |
| Tennessee..... | 45 | 43 | 22 | 7 | 18 | 1 | 3 | 6 |
| Alabama..... | 30 | 29 | 10 | 11 | 2 | | 2 | 2 |
| Mississippi..... | 9 | 19 | | | | | 0 | 0 |

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended Sept. 18, 1937, and Sept. 19, 1936—Continued*

| Division and State | Diphtheria | | Influenza | | Measles | | Meningococcus meningitis | |
|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 |
| West South Central States: | | | | | | | | |
| Arkansas..... | 16 | 7 | 1 | | 1 | | 0 | 0 |
| Louisiana..... | 10 | 11 | 2 | 7 | | | 2 | 1 |
| Oklahoma..... | 3 | 10 | 10 | 16 | 1 | 1 | 2 | 1 |
| Texas..... | 26 | 33 | 79 | 20 | 20 | 10 | 0 | 3 |
| Mountain States: | | | | | | | | |
| Montana..... | 1 | | | 5 | 8 | 1 | 0 | 0 |
| Idaho..... | | | | 1 | 3 | | 0 | 0 |
| Wyoming..... | 1 | | | | 1 | 4 | 0 | 0 |
| Colorado..... | 11 | 3 | | | 7 | 3 | 1 | 0 |
| New Mexico..... | 2 | 1 | | | 2 | 10 | 0 | 0 |
| Arizona..... | 9 | 2 | 15 | 9 | | 4 | 0 | 0 |
| Utah..... | 7 | 1 | | | 10 | 1 | 0 | 0 |
| Pacific States: | | | | | | | | |
| Washington..... | | | | 1 | 10 | 11 | 0 | 0 |
| Oregon..... | 3 | 1 | 10 | 4 | 7 | 2 | 0 | 0 |
| California..... | 17 | 30 | 10 | 15 | 21 | 40 | 1 | 4 |
| Total..... | 565 | 499 | 371 | 256 | 577 | 238 | 53 | 49 |
| First 37 weeks of year..... | 15,435 | 16,474 | 275,825 | 141,043 | 243,814 | 268,600 | 4,389 | 6,110 |

| Division and State | Poliomyelitis | | Scarlet fever | | Smallpox | | Typhoid fever | |
|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 |
| New England States: | | | | | | | | |
| Maine..... | 16 | 1 | 3 | 6 | 0 | 0 | 1 | 1 |
| New Hampshire..... | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 0 |
| Vermont..... | 6 | 0 | 3 | 2 | 0 | 0 | 3 | 0 |
| Massachusetts..... | 41 | 1 | 45 | 43 | 0 | 0 | 5 | 4 |
| Rhode Island..... | 4 | 0 | 4 | 12 | 0 | 0 | 0 | 1 |
| Connecticut..... | 16 | 0 | 12 | 9 | 0 | 0 | 4 | 4 |
| Middle Atlantic States: | | | | | | | | |
| New York..... | 91 | 12 | 88 | 86 | 0 | 0 | 36 | 20 |
| New Jersey..... | 21 | 1 | 16 | 13 | 0 | 0 | 12 | 19 |
| Pennsylvania..... | 40 | 8 | 73 | 105 | 0 | 0 | 50 | 22 |
| East North Central States: | | | | | | | | |
| Ohio..... | 59 | 17 | 133 | 111 | 0 | 0 | 83 | 39 |
| Indiana..... | 10 | 3 | 44 | 36 | 5 | 0 | 3 | 17 |
| Illinois..... | 81 | 48 | 101 | 95 | 0 | 4 | 28 | 26 |
| Michigan..... | 57 | 11 | 81 | 76 | 2 | 4 | 10 | 7 |
| Wisconsin..... | 45 | 4 | 27 | 68 | 0 | 1 | 6 | 4 |
| West North Central States: | | | | | | | | |
| Minnesota..... | 52 | 3 | 23 | 27 | 2 | 4 | 5 | 2 |
| Iowa..... | 35 | 4 | 24 | 18 | 2 | 2 | 1 | 4 |
| Missouri..... | 47 | 4 | 74 | 25 | 3 | 0 | 33 | 23 |
| North Dakota..... | 0 | 2 | 4 | 3 | 0 | 14 | 0 | 1 |
| South Dakota..... | 3 | 0 | 14 | 9 | 0 | 0 | 1 | 0 |
| Nebraska..... | 18 | 0 | 10 | 5 | 1 | 0 | 0 | 1 |
| Kansas..... | 30 | 3 | 31 | 18 | 0 | 0 | 14 | 7 |
| South Atlantic States: | | | | | | | | |
| Delaware..... | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 1 |
| Maryland..... | 7 | 7 | 30 | 17 | 0 | 0 | 17 | 5 |
| District of Columbia..... | 2 | 0 | 5 | 8 | 0 | 0 | 1 | 0 |
| Virginia..... | 5 | 5 | 7 | 12 | 0 | 0 | 18 | 24 |
| West Virginia..... | 2 | 7 | 25 | 29 | 0 | 0 | 15 | 28 |
| North Carolina..... | 4 | 1 | 31 | 48 | 1 | 0 | 9 | 28 |
| South Carolina..... | 1 | 0 | 8 | 6 | 0 | 0 | 14 | 13 |
| Georgia..... | 5 | 9 | 20 | 22 | 0 | 0 | 13 | 32 |
| Florida..... | 1 | 1 | 1 | 4 | 0 | 0 | 6 | 0 |

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 18, 1937, and Sept. 19, 1936—Continued

| Division and State | Polio-myelitis | | Scarlet fever | | Smallpox | | Typhoid fever | |
|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 | Week ended Sept. 18, 1937 | Week ended Sept. 19, 1936 |
| East South Central States: | | | | | | | | |
| Kentucky..... | 4 | 1 | 31 | 31 | 0 | 5 | 25 | 56 |
| Tennessee..... | 1 | 17 | 21 | 36 | 0 | 0 | 12 | 31 |
| Alabama ¹ | 3 | 13 | 20 | 14 | 0 | 0 | 6 | 13 |
| Mississippi ^{2,4} | 4 | 6 | 8 | 58 | 0 | 0 | 7 | 19 |
| West South Central States: | | | | | | | | |
| Arkansas..... | 9 | 1 | 6 | 5 | 0 | 0 | 13 | 7 |
| Louisiana ¹ | 8 | 2 | 7 | 7 | 0 | 0 | 18 | 14 |
| Oklahoma ¹ | 19 | 1 | 12 | 2 | 0 | 0 | 11 | 24 |
| Texas ¹ | 33 | 5 | 24 | 27 | 1 | 0 | 56 | 28 |
| Mountain States: | | | | | | | | |
| Montana..... | 4 | 0 | 37 | 11 | 3 | 5 | 3 | 16 |
| Idaho..... | 0 | 1 | 9 | 4 | 4 | 0 | 8 | 1 |
| Wyoming..... | 5 | 2 | 9 | — | 0 | 0 | 0 | 1 |
| Colorado..... | 21 | 8 | 9 | 12 | 1 | 3 | 6 | 2 |
| New Mexico..... | 3 | 4 | 6 | 2 | 0 | 0 | 16 | 20 |
| Arizona..... | 3 | 2 | 7 | — | 0 | 0 | 6 | 3 |
| Utah ¹ | 4 | 0 | 36 | 3 | 0 | 0 | 0 | 0 |
| Pacific States: | | | | | | | | |
| Washington..... | 10 | 10 | 12 | 13 | 14 | 2 | 6 | 5 |
| Oregon..... | 2 | 2 | 16 | 10 | 5 | 0 | 5 | 7 |
| California..... | 46 | 15 | 89 | 88 | 4 | 0 | 16 | 20 |
| Total..... | 870 | 242 | 1,298 | 1,241 | 48 | 44 | 604 | 600 |
| First 37 weeks of year..... | 6,391 | 2,261 | 168,788 | 182,651 | 8,184 | 6,070 | 10,614 | 9,769 |

¹ New York City only.

² Rocky Mountain spotted fever, week ended Sept. 18, 1937, 4 cases, as follows: Maryland, 1; Virginia, 3.

³ Typhus fever, week ended Sept. 18, 1937, 68 cases, as follows: North Carolina, 1; South Carolina, 1; Georgia, 28; Florida, 7; Alabama, 14; Mississippi, 2; Louisiana, 1; Texas, 14.

⁴ Week ended earlier than Saturday.

⁵ Figures for 1936 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

| State | Menin- gococ- cus menin- gitis | Diph- theria | Influ- enza | Mala- ria | Mea- sles | Pel- lagra | Polio- mye- litis | Scarlet fever | Small- pox | Ty- phoid fever |
|--------------------|---|-----------------|----------------|--------------|--------------|---------------|-------------------------|------------------|---------------|-----------------------|
| <i>August 1937</i> | | | | | | | | | | |
| Alabama..... | 18 | 48 | 14 | 765 | 15 | 18 | 13 | 25 | 18 | 67 |
| Georgia..... | 3 | 79 | 24 | 823 | 12 | 29 | 17 | 32 | 0 | 103 |
| Illinois..... | 16 | 63 | 21 | 48 | 286 | 3 | 195 | 311 | 16 | 106 |
| Indiana..... | 5 | 24 | 13 | 4 | 72 | — | 34 | 82 | 15 | 26 |
| Michigan..... | 2 | 41 | 5 | 10 | 209 | — | 102 | 412 | 2 | 65 |
| Minnesota..... | 6 | 8 | 4 | — | 15 | — | 43 | 92 | 18 | 9 |
| Nevada..... | — | — | — | — | — | — | 11 | 4 | 0 | 2 |
| New Jersey..... | 6 | 19 | 9 | 6 | 189 | — | 36 | 52 | 0 | 31 |
| Ohio..... | 10 | 39 | 19 | 6 | 372 | — | 184 | 302 | — | 237 |
| Tennessee..... | 4 | 41 | 37 | 229 | 70 | 30 | 10 | 44 | 1 | 167 |
| Virginia..... | 11 | 67 | 51 | 22 | 61 | 7 | 11 | 30 | 0 | 97 |

¹ Delayed report of case occurring in July.

Summary of monthly reports from States—Continued

August 1937

| Actinomyces: | Cases | Impetigo contagiosa: | Cases | Septic sore throat—Con. | Cases |
|-----------------------------|-------|------------------------|-------|-------------------------|-------|
| Illinois..... | 2 | Tennessee..... | 7 | Ohio..... | 87 |
| Anthrax: | | Lead poisoning: | | Tennessee..... | 8 |
| New Jersey..... | 1 | Illinois..... | 2 | Virginia..... | 6 |
| Chicken pox: | | Ohio..... | 16 | Tetanus: | |
| Alabama..... | 37 | Mumps: | | Alabama..... | 4 |
| Georgia..... | 8 | Alabama..... | 51 | Illinois..... | 4 |
| Illinois..... | 136 | Georgia..... | 13 | Michigan..... | 3 |
| Indiana..... | 16 | Illinois..... | 198 | Minnesota..... | 1 |
| Michigan..... | 91 | Indiana..... | 9 | New Jersey..... | 2 |
| Minnesota..... | 81 | Michigan..... | 220 | Ohio..... | 3 |
| New Jersey..... | 67 | New Jersey..... | 123 | Tennessee..... | 3 |
| Ohio..... | 79 | Ohio..... | 48 | Virginia..... | 5 |
| Tennessee..... | 11 | Tennessee..... | 46 | Trachoma: | |
| Virginia..... | 3 | Virginia..... | 40 | Illinois..... | 92 |
| Conjunctivitis, infectious: | | Ophthalmia neonatorum: | | Michigan..... | 1 |
| Georgia..... | 12 | Alabama..... | 1 | Tennessee..... | 3 |
| Dengue: | | Illinois..... | 7 | Trichinosis: | |
| Alabama..... | 1 | Minnesota..... | 3 | Illinois..... | 2 |
| Georgia..... | 1 | New Jersey..... | 7 | Michigan..... | 2 |
| Diarrhea and enteritis: | | Ohio..... | 71 | New Jersey..... | 1 |
| Ohio (under 2 years)... | 75 | Tennessee..... | 4 | Tularaemia: | |
| Dysentery: | | Virginia..... | 3 | Georgia..... | 2 |
| Georgia (amoebic)..... | 13 | Paratyphoid fever: | | Illinois..... | 2 |
| Georgia (bacillary)..... | 26 | Georgia..... | 5 | Michigan..... | 1 |
| Illinois (amoebic)..... | 14 | Illinois..... | 5 | Minnesota..... | 6 |
| Illinois (amoebic car- | | Michigan..... | 6 | Tennessee..... | 2 |
| riers)..... | 40 | Minnesota..... | 1 | Virginia..... | 1 |
| Illinois (bacillary)..... | 104 | New Jersey..... | 5 | Typhus fever: | |
| Michigan (amoebic)..... | 5 | Ohio..... | 1 | Alabama..... | 73 |
| Michigan (bacillary)..... | 10 | Tennessee..... | 12 | Georgia..... | 146 |
| Minnesota (amoebic)..... | 1 | Virginia..... | 1 | Tennessee..... | 4 |
| Minnesota (bacillary)..... | 3 | Puerperal septicaemia: | | Undulant fever: | |
| New Jersey (amoebic)..... | 2 | Georgia..... | 1 | Alabama..... | 8 |
| New Jersey (bacillary)..... | 3 | Ohio..... | 5 | Georgia..... | 4 |
| Ohio (amoebic)..... | 1 | Tennessee..... | 2 | Illinois..... | 8 |
| Ohio (bacillary)..... | 7 | Rabies in animals: | | Indiana..... | 1 |
| Tennessee (amoebic)..... | 3 | Alabama..... | 58 | Michigan..... | 8 |
| Tennessee (bacillary)..... | 56 | Illinois..... | 34 | Minnesota..... | 10 |
| Virginia (diarrhea in- | | Indiana..... | 58 | New Jersey..... | 5 |
| cluded)..... | 521 | Michigan..... | 1 | Ohio..... | 4 |
| Encephalitis, epidemic or | | New Jersey..... | 4 | Virginia..... | 2 |
| lethargic: | | Rabies in man: | | Vincent's infection: | |
| Alabama..... | 1 | Alabama..... | 1 | Illinois..... | 14 |
| Georgia..... | 1 | Illinois..... | 1 | Michigan..... | 21 |
| Illinois..... | 7 | Michigan..... | 1 | Tennessee..... | 4 |
| Indiana..... | 1 | Tennessee..... | 1 | Whooping cough: | |
| Minnesota..... | 3 | Rocky Mountain spotted | | Alabama..... | 99 |
| New Jersey..... | 1 | fever: | | Georgia..... | 297 |
| Ohio..... | 6 | Illinois..... | 2 | Illinois..... | 751 |
| German measles: | | Indiana..... | 1 | Indiana..... | 131 |
| Alabama..... | 3 | New Jersey..... | 1 | Michigan..... | 955 |
| Illinois..... | 36 | Tennessee..... | 5 | Minnesota..... | 282 |
| Michigan..... | 40 | Virginia..... | 11 | Nevada..... | 9 |
| New Jersey..... | 30 | Septic sore throat: | | New Jersey..... | 310 |
| Ohio..... | 15 | Georgia..... | 30 | Ohio..... | 1,005 |
| Tennessee..... | 3 | Illinois..... | 10 | Tennessee..... | 211 |
| Hookworm disease: | | Michigan..... | 9 | Virginia..... | 242 |
| Georgia..... | 421 | Minnesota..... | 8 | | |
| Michigan..... | 1 | | | | |
| Tennessee..... | 2 | | | | |

CASES OF VENEREAL DISEASES REPORTED FOR JULY 1937

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

| State | Syphilis | | Gonorrhea | |
|-----------------------------------|-----------------------------|--|-----------------------------|--|
| | Cases reported during month | Monthly case rates per 10,000 population | Cases reported during month | Monthly case rates per 10,000 population |
| Alabama..... | 1,506 | 5.26 | 423 | 1.48 |
| Arizona..... | 48 | 1.18 | 99 | 2.44 |
| Arkansas ¹ | 615 | 3.04 | 338 | 1.67 |
| California..... | 2,148 | 3.55 | 2,286 | 3.77 |
| Colorado..... | 141 | 1.32 | 59 | .55 |
| Connecticut..... | 200 | 1.15 | 117 | .67 |
| Delaware..... | 197 | 7.61 | 66 | 2.55 |
| District of Columbia..... | 185 | 3.00 | 178 | 2.88 |
| Florida..... | 1,834 | 11.17 | 345 | 2.10 |
| Georgia..... | 1,780 | 5.82 | 477 | 1.55 |
| Idaho..... | 38 | .78 | 52 | 1.07 |
| Illinois..... | 2,424 | 3.09 | 1,506 | 1.93 |
| Indiana..... | 214 | .62 | 122 | .35 |
| Iowa ¹ | 299 | 1.18 | 216 | .85 |
| Kansas..... | 177 | .94 | 61 | .32 |
| Kentucky ² | | | | |
| Louisiana..... | 194 | .91 | 120 | .57 |
| Maine ¹ | 37 | .43 | 77 | .90 |
| Maryland ² | 325 | 1.94 | 227 | 1.36 |
| Massachusetts..... | 514 | 1.16 | 506 | 1.14 |
| Michigan..... | 735 | 1.54 | 694 | 1.45 |
| Minnesota..... | 255 | .97 | 266 | 1.01 |
| Mississippi..... | 2,156 | 10.74 | 2,637 | 13.13 |
| Missouri..... | 660 | 1.67 | 470 | 1.16 |
| Montana ¹ | 54 | 1.02 | 40 | .75 |
| Nebraska..... | 78 | .57 | 118 | .87 |
| Nevada ¹ | | | | |
| New Hampshire..... | 15 | .30 | 4 | .08 |
| New Jersey..... | 648 | 1.50 | 224 | .52 |
| New Mexico ¹ | 121 | 2.87 | 37 | .88 |
| New York ² | | | | |
| North Carolina..... | 2,240 | 6.48 | 361 | 1.04 |
| North Dakota ² | | | | |
| Ohio ¹ | 1,144 | 1.70 | 463 | .69 |
| Oklahoma ¹ | 642 | 2.54 | 343 | 1.36 |
| Oregon..... | 125 | 1.23 | 249 | 2.45 |
| Pennsylvania ² | 1,641 | 1.62 | 200 | .20 |
| Rhode Island..... | 77 | 1.13 | 92 | 1.35 |
| South Carolina ² | | | | |
| South Dakota ² | | | | |
| Tennessee..... | 1,035 | 3.61 | 607 | 2.12 |
| Texas..... | 586 | .96 | 205 | .34 |
| Utah..... | 2 | .04 | 7 | .14 |
| Vermont ² | | | | |
| Virginia..... | 1,557 | 5.83 | 439 | 1.64 |
| Washington..... | 159 | 1.15 | 260 | 1.58 |
| West Virginia..... | 347 | 1.90 | 162 | .89 |
| Wisconsin ² | 223 | .77 | 56 | .19 |
| Wyoming ² | | | | |
| Total..... | 27,407 | 2.52 | 15,199 | 1.40 |

See footnotes at end of table.

Reports from cities of 200,000 population or over

| State | Syphilis | | Gonorrhea | |
|---------------------------------|-----------------------------|--|-----------------------------|--|
| | Cases reported during month | Monthly case rates per 10,000 population | Cases reported during month | Monthly case rates per 10,000 population |
| Akron, Ohio | 53 | 1.95 | 46 | 1.69 |
| Atlanta, Ga. | 118 | 4.11 | 111 | 3.87 |
| Baltimore, Md. | 409 | 4.96 | 169 | 2.05 |
| Birmingham, Ala. | 151 | 5.35 | 68 | 2.41 |
| Boston, Mass. | 211 | 2.67 | 199 | 2.52 |
| Buffalo, N. Y. | 128 | 2.16 | 83 | 1.40 |
| Chicago, Ill. | 1,167 | 3.10 | 867 | 2.43 |
| Cincinnati, Ohio ¹ | | | | |
| Cleveland, Ohio | 233 | 2.50 | 133 | 1.43 |
| Columbus, Ohio | 84 | 2.75 | 13 | .43 |
| Dallas, Tex. | 210 | 7.25 | 96 | 2.97 |
| Dayton, Ohio | 35 | 1.66 | | |
| Denver, Colo. | 74 | 2.49 | 55 | 1.85 |
| Detroit, Mich. ² | | | | |
| Houston, Tex. ² | | | | |
| Indianapolis, Ind. | 21 | .56 | 35 | .93 |
| Jersey City, N. J. ³ | | | | |
| Kansas City, Mo. | 38 | .90 | 5 | .12 |
| Los Angeles, Calif. | 606 | 4.23 | 652 | 4.55 |
| Louisville, Ky. | 169 | 5.22 | 84 | 2.59 |
| Memphis, Tenn. | 268 | 10.04 | 189 | 5.96 |
| Milwaukee, Wis. ⁴ | | | | |
| Minneapolis, Minn. | 61 | 1.25 | 86 | 1.77 |
| Newark, N. J. | 229 | 4.94 | 110 | 2.37 |
| New Orleans, La. ¹ | | | | |
| New York, N. Y. | 8,669 | 11.87 | 1,992 | 2.73 |
| Oakland, Calif. | 61 | 2.01 | 81 | 2.67 |
| Omaha, Nebr. | 50 | 2.27 | 44 | 2.00 |
| Philadelphia, Pa. ¹ | | | | |
| Pittsburgh, Pa. | 98 | 1.43 | 25 | .37 |
| Portland, Oreg. ⁴ | | | | |
| Providence, R. I. | 48 | 1.85 | 34 | 1.31 |
| Rochester, N. Y. | 52 | 1.54 | 57 | 1.69 |
| St. Louis, Mo. | 239 | 2.86 | 233 | 2.78 |
| St. Paul, Minn. | 33 | 1.17 | 32 | 1.13 |
| San Antonio, Tex. ¹ | | | | |
| San Francisco, Calif. | 233 | 3.47 | 283 | 4.22 |
| Seattle, Wash. | 47 | 1.24 | 56 | 1.47 |
| Syracuse, N. Y. | 125 | 3.74 | 77 | 3.33 |
| Toledo, Ohio | | | | |
| Washington, D. C. ⁵ | 186 | 3.00 | 178 | 2.88 |

¹ Incomplete.² No report for current month.³ Reported by clinics.⁴ Not reporting.⁵ Only cases of syphilis in the infectious stage are reported.⁶ Reported by social-hygiene clinic.

WEEKLY REPORTS FROM CITIES

City reports for week ended Sept. 11, 1937

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

| State and city | Diph- theria cases | Influenza | | Mea- sles cases | Pneu- monia deaths | Scar- let fever cases | Small- pox cases | Tuber- culosis deaths | Ty- phoid fever cases | Whoop- ing cough cases | Deaths, all causes |
|--|--------------------------|-----------|--------|-----------------------|--------------------------|--------------------------------|------------------------|-----------------------------|--------------------------------|---------------------------------|--------------------------|
| | | Cases | Deaths | | | | | | | | |
| Data for 90 cities: 5-year average..... | 143 | 68 | 15 | 118 | 288 | 325 | 3 | 348 | 102 | 940 | ----- |
| Current week 1..... | 81 | 30 | 14 | 198 | 270 | 273 | 3 | 304 | 68 | 925 | ----- |
| Maine: | | | | | | | | | | | |
| Portland..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 21 |
| New Hampshire: | | | | | | | | | | | |
| Concord..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 |
| Manchester..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 |
| Nashua..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13 | 3 |
| Vermont: | | | | | | | | | | | |
| Barre..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Burlington..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Rutland..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Massachusetts: | | | | | | | | | | | |
| Boston..... | 1 | ----- | 0 | 3 | 16 | 3 | 0 | 6 | 0 | 13 | 166 |
| Fall River..... | 0 | ----- | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 14 | 15 |
| Springfield..... | 0 | ----- | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 14 | 31 |
| Worcester..... | 0 | ----- | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 4 | 43 |
| Rhode Island: | | | | | | | | | | | |
| Pawtucket..... | 0 | ----- | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 |
| Providence..... | 0 | ----- | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 18 | 41 |
| Connecticut: | | | | | | | | | | | |
| Bridgeport..... | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 1 | 25 |
| Hartford..... | 0 | ----- | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 3 | 24 |
| New Haven..... | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 23 |
| New York: | | | | | | | | | | | |
| Buffalo..... | 0 | ----- | 0 | 3 | 3 | 5 | 0 | 7 | 3 | 7 | 121 |
| New York..... | 11 | 2 | 1 | 34 | 43 | 24 | 0 | 70 | 12 | 112 | 1,152 |
| Rochester..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 58 |
| Syracuse..... | 0 | ----- | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 16 | 42 |
| New Jersey: | | | | | | | | | | | |
| Camden..... | 0 | ----- | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 36 |
| Newark..... | 0 | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 0 | 15 | 85 |
| Trenton..... | 0 | ----- | 0 | 1 | 1 | 2 | 0 | 3 | 0 | 0 | 34 |
| Pennsylvania: | | | | | | | | | | | |
| Philadelphia..... | 3 | ----- | 0 | 2 | 15 | 5 | 0 | 18 | 3 | 22 | 399 |
| Pittsburgh..... | 0 | ----- | 0 | 7 | 7 | 6 | 0 | 5 | 1 | 14 | 150 |
| Reading..... | 0 | ----- | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 20 |
| Scranton..... | 0 | ----- | 0 | 1 | ----- | 0 | 0 | ----- | 0 | 4 | ----- |
| Ohio: | | | | | | | | | | | |
| Cincinnati..... | 0 | 4 | 0 | 10 | 5 | 15 | 0 | 0 | 4 | 53 | 154 |
| Cleveland..... | 1 | ----- | 0 | 2 | 2 | 4 | 0 | 4 | 1 | 10 | 73 |
| Columbus..... | 1 | ----- | 0 | 5 | 4 | 3 | 0 | 2 | 2 | 19 | 51 |
| Toledo..... | 1 | ----- | 0 | 5 | 4 | 3 | 0 | 2 | 2 | 19 | 51 |
| Indiana: | | | | | | | | | | | |
| Anderson..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 6 |
| Fort Wayne..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| Indianapolis..... | 3 | ----- | 0 | 4 | 6 | 3 | 0 | 5 | 0 | 19 | 84 |
| Muncie..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 |
| South Bend..... | 0 | ----- | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 15 |
| Terre Haute..... | 0 | ----- | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 27 |
| Illinois: | | | | | | | | | | | |
| Alton..... | 0 | ----- | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 4 |
| Chicago..... | 1 | 7 | 3 | 21 | 12 | 42 | 0 | 34 | 2 | 68 | 561 |
| Elgin..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Moline..... | 0 | ----- | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 10 |
| Springfield..... | 0 | ----- | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 3 | 16 |
| Michigan: | | | | | | | | | | | |
| Detroit..... | 7 | ----- | 2 | 14 | 9 | 22 | 0 | 12 | 3 | 66 | 207 |
| Flint..... | 0 | ----- | 0 | 1 | 1 | 9 | 0 | 0 | 0 | 8 | 16 |
| Grand Rapids..... | 0 | ----- | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 12 | 32 |
| Wisconsin: | | | | | | | | | | | |
| Kenosha..... | 0 | ----- | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 2 | 7 |
| Madison..... | 0 | ----- | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | ----- |
| Milwaukee..... | 0 | ----- | 0 | 9 | 2 | 7 | 0 | 2 | 0 | 55 | 63 |
| Racine..... | 0 | ----- | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 11 |
| Superior..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |

¹ Figures for Barre, Cincinnati, and Boise estimated; reports not received.

City reports for week ended Sept. 11, 1937—Continued

| State and city | Diph- theria cases | Influenza | | Meas- les cases | Pneu- monia deaths | Scar- let fever cases | Small- pox cases | Tuber- culosis deaths | Ty- phoid fever cases | Whoop- ing cough cases | Deaths, all causes |
|----------------------------|--------------------------|-----------|--------|-----------------------|--------------------------|--------------------------------|------------------------|-----------------------------|--------------------------------|---------------------------------|--------------------------|
| | | Cases | Deaths | | | | | | | | |
| Minnesota: | | | | | | | | | | | |
| Duluth..... | 0 | ----- | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 6 | 13 |
| Minneapolis..... | 0 | ----- | 0 | 1 | 3 | 6 | 0 | 1 | 0 | 10 | 92 |
| St. Paul..... | 0 | ----- | 0 | 3 | 2 | 0 | 0 | 1 | 1 | 25 | 53 |
| Iowa: | | | | | | | | | | | |
| Cedar Rapids..... | 0 | ----- | ----- | 1 | ----- | 0 | 0 | ----- | 0 | 4 | ----- |
| Davenport..... | 1 | ----- | ----- | 0 | ----- | 1 | 0 | ----- | 0 | 0 | ----- |
| Des Moines..... | 0 | ----- | ----- | 0 | ----- | 3 | 0 | ----- | 0 | 0 | 28 |
| Sioux City..... | 1 | ----- | ----- | 0 | ----- | 0 | 0 | ----- | 0 | 0 | ----- |
| Waterloo..... | 1 | ----- | ----- | 0 | ----- | 1 | 0 | ----- | 0 | 3 | ----- |
| Missouri: | | | | | | | | | | | |
| Kansas City..... | 2 | ----- | 0 | 1 | 2 | 3 | 0 | 3 | 1 | 4 | 79 |
| St. Joseph..... | 1 | ----- | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 18 |
| St. Louis..... | 4 | 1 | 0 | 23 | 3 | 14 | 1 | 3 | 3 | 8 | 175 |
| North Dakota: | | | | | | | | | | | |
| Fargo..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 4 |
| Grand Forks..... | 0 | ----- | ----- | 0 | ----- | 0 | 0 | ----- | 0 | 2 | ----- |
| Minot..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 |
| South Dakota: | | | | | | | | | | | |
| Aberdeen..... | 0 | ----- | ----- | 0 | ----- | 0 | 0 | ----- | 0 | 4 | ----- |
| Nebraska: | | | | | | | | | | | |
| Omaha..... | 0 | ----- | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 52 |
| Kansas: | | | | | | | | | | | |
| Lawrence..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 5 |
| Topeka..... | 0 | ----- | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 11 | 21 |
| Wichita..... | 0 | ----- | 0 | 0 | 2 | 3 | 0 | 0 | 3 | 2 | 19 |
| Delaware: | | | | | | | | | | | |
| Wilmington..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 23 |
| Maryland: | | | | | | | | | | | |
| Baltimore..... | 3 | 2 | 0 | 2 | 12 | 7 | 0 | 14 | 4 | 60 | 171 |
| Cumberland..... | 0 | ----- | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 6 |
| Frederick..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| District of Colum- bia: | | | | | | | | | | | |
| Washington..... | 3 | 2 | 2 | 2 | 6 | 3 | 0 | 10 | 0 | 8 | 136 |
| Virginia: | | | | | | | | | | | |
| Lynchburg..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 13 |
| Richmond..... | 3 | ----- | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 4 | 51 |
| Roanoke..... | 0 | ----- | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 12 |
| West Virginia: | | | | | | | | | | | |
| Charleston..... | 1 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Wheeling..... | 0 | ----- | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 19 |
| North Carolina: | | | | | | | | | | | |
| Gastonia..... | 0 | ----- | ----- | 0 | ----- | 0 | 0 | ----- | 0 | 3 | ----- |
| Raleigh..... | 0 | ----- | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 9 |
| Wilmington..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 11 |
| Winston-Salem..... | 1 | ----- | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 7 |
| South Carolina: | | | | | | | | | | | |
| Charleston..... | 0 | ----- | 0 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 19 |
| Columbia..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 18 |
| Florence..... | 0 | ----- | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Greenville..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 |
| Georgia: | | | | | | | | | | | |
| Atlanta..... | 3 | ----- | 0 | 0 | 9 | 5 | 0 | 6 | 1 | 2 | 87 |
| Brunswick..... | 1 | ----- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Savannah..... | 4 | ----- | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 4 | 32 |
| Florida: | | | | | | | | | | | |
| Miami..... | 0 | ----- | 1 | 8 | 2 | 0 | 0 | 1 | 1 | 0 | 43 |
| Tampa..... | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 26 |
| Kentucky: | | | | | | | | | | | |
| Covington..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 12 |
| Lexington..... | 0 | ----- | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 5 | 20 |
| Louisville..... | 1 | ----- | 0 | 1 | 4 | 10 | 0 | 2 | 0 | 17 | 55 |
| Tennessee: | | | | | | | | | | | |
| Knoxville..... | 0 | ----- | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 20 |
| Memphis..... | 1 | ----- | 0 | 0 | 1 | 1 | 0 | 5 | 2 | 8 | 70 |
| Nashville..... | 0 | ----- | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 38 |
| Alabama: | | | | | | | | | | | |
| Birmingham..... | 2 | 1 | 0 | 2 | 1 | 0 | 0 | 4 | 0 | 0 | 52 |
| Mobile..... | 0 | ----- | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 23 |
| Montgomery..... | 1 | ----- | ----- | 0 | ----- | 1 | 0 | ----- | 0 | 2 | ----- |
| Arkansas: | | | | | | | | | | | |
| Fort Smith..... | 0 | ----- | ----- | 0 | ----- | 3 | 0 | ----- | 1 | 0 | ----- |
| Little Rock..... | 0 | ----- | 0 | 0 | 4 | 0 | 0 | 5 | 1 | 1 | 11 |

City reports for week ended Sept. 11, 1937—Continued

| State and city | Diph- theria cases | Influenza | | Meas- les cases | Pneu- monia deaths | Scar- let fever cases | Small- pox cases | Tuber- culosis deaths | Ty- phoid fever cases | Whoop- ing cough cases | Deaths, all causes |
|-----------------------|--------------------------|-----------|--------|-----------------------|--------------------------|--------------------------------|------------------------|-----------------------------|--------------------------------|---------------------------------|--------------------------|
| | | Cases | Deaths | | | | | | | | |
| Louisiana: | | | | | | | | | | | |
| New Orleans..... | 0 | 1 | 1 | 0 | 8 | 2 | 0 | 6 | 0 | 5 | 125 |
| Shreveport..... | 0 | | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 45 |
| Oklahoma: | | | | | | | | | | | |
| Muskogee..... | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Oklahoma City..... | 0 | | 0 | 0 | 4 | 2 | 0 | 0 | 1 | 2 | 45 |
| Texas: | | | | | | | | | | | |
| Dallas..... | 2 | | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 40 |
| Fort Worth..... | 0 | | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 34 |
| Galveston..... | 0 | | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 18 |
| Houston..... | 10 | | 0 | 2 | 6 | 3 | 0 | 4 | 8 | 0 | 81 |
| San Antonio..... | 0 | | 0 | 0 | 1 | 1 | 0 | 4 | 2 | 0 | 54 |
| Montana: | | | | | | | | | | | |
| Billings..... | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Great Falls..... | 0 | | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 5 |
| Helena..... | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Missoula..... | 0 | | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 |
| Idaho: | | | | | | | | | | | |
| Boise..... | | | | | | | | | | | |
| Colorado: | | | | | | | | | | | |
| Colorado Springs..... | 0 | | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 2 | 11 |
| Denver..... | 2 | | 1 | 16 | 3 | 5 | 2 | 3 | 0 | 13 | 69 |
| Pueblo..... | 1 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| New Mexico: | | | | | | | | | | | |
| Albuquerque..... | 0 | | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 4 | 10 |
| Utah: | | | | | | | | | | | |
| Salt Lake City..... | 4 | | 0 | 1 | 1 | 6 | 0 | 0 | 0 | 11 | 31 |
| Washington: | | | | | | | | | | | |
| Seattle..... | 0 | | 0 | 0 | 1 | 4 | 0 | 2 | 0 | 13 | 92 |
| Spokane..... | 0 | | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 2 | 26 |
| Tacoma..... | 0 | | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 2 | 26 |
| Oregon: | | | | | | | | | | | |
| Portland..... | 0 | | 0 | 2 | 4 | 3 | 0 | 2 | 0 | 1 | 74 |
| Salem..... | 0 | | | 0 | | 0 | 1 | | 0 | 0 | |
| California: | | | | | | | | | | | |
| Los Angeles..... | 6 | 4 | 1 | 7 | 8 | 15 | 0 | 16 | 0 | 34 | 241 |
| Sacramento..... | 0 | | 0 | 1 | 4 | 0 | 0 | 3 | 0 | 8 | 31 |
| San Francisco..... | 0 | 2 | 1 | 0 | 6 | 4 | 0 | 4 | 2 | 18 | 158 |

City reports for week ended Sept. 11, 1937—Continued

| State and city | Meningococcus meningitis | | Polio-myelitis cases | State and city | Meningococcus meningitis | | Polio-myelitis cases |
|-------------------|--------------------------|--------|----------------------|-----------------------|--------------------------|--------|----------------------|
| | Cases | Deaths | | | Cases | Deaths | |
| Maine: | | | | Iowa: | | | |
| Portland..... | 0 | 0 | 4 | Cedar Rapids..... | 0 | 0 | 2 |
| New Hampshire: | | | | Des Moines..... | 0 | 0 | 3 |
| Nashua..... | 0 | 0 | 2 | Sioux City..... | 0 | 0 | 1 |
| Massachusetts: | | | | Missouri: | | | |
| Boston..... | 0 | 0 | 7 | Kansas City..... | 0 | 0 | 12 |
| Springfield..... | 0 | 0 | 1 | St. Joseph..... | 1 | 0 | 1 |
| Worcester..... | 0 | 0 | 3 | St. Louis..... | 0 | 0 | 3 |
| Rhode Island: | | | | North Dakota: | | | |
| Providence..... | 1 | 0 | 0 | Minot..... | 0 | 0 | 1 |
| Connecticut: | | | | Nebraska: | | | |
| Bridgeport..... | 0 | 0 | 1 | Omaha..... | 0 | 0 | 11 |
| New York: | | | | Kansas: | | | |
| Buffalo..... | 1 | 0 | 7 | Wichita..... | 0 | 0 | 4 |
| New York..... | 1 | 1 | 51 | Delaware: | | | |
| Rochester..... | 0 | 0 | 1 | Wilmington..... | 3 | 1 | 0 |
| Syracuse..... | 0 | 0 | 1 | Maryland: | | | |
| New Jersey: | | | | Baltimore..... | 0 | 1 | 5 |
| Camden..... | 0 | 0 | 1 | District of Columbia: | | | |
| Newark..... | 0 | 0 | 1 | Washington..... | 2 | 0 | 0 |
| Pennsylvania: | | | | West Virginia: | | | |
| Philadelphia..... | 0 | 0 | 10 | Wheeling..... | 0 | 0 | 1 |
| Scranton..... | 0 | 0 | 1 | Kentucky: | | | |
| Ohio: | | | | Louisville..... | 1 | 0 | 2 |
| Cleveland..... | 0 | 0 | 12 | Tennessee: | | | |
| Columbus..... | 0 | 0 | 4 | Memphis..... | 0 | 0 | 1 |
| Toledo..... | 0 | 0 | 5 | Arkansas: | | | |
| Indiana: | | | | Fort Smith..... | 0 | 0 | 1 |
| Indianapolis..... | 0 | 0 | 2 | Little Rock..... | 0 | 0 | 1 |
| Muncie..... | 0 | 0 | 2 | Louisiana: | | | |
| Terre Haute..... | 0 | 0 | 1 | New Orleans..... | 0 | 0 | 3 |
| Illinois: | | | | Shreveport..... | 0 | 1 | 0 |
| Chicago..... | 1 | 0 | 62 | Oklahoma: | | | |
| Elgin..... | 0 | 0 | 1 | Oklahoma City..... | 0 | 0 | 1 |
| Moline..... | 0 | 0 | 2 | Texas: | | | |
| Springfield..... | 0 | 0 | 1 | Fort Worth..... | 0 | 0 | 1 |
| Michigan: | | | | Galveston..... | 0 | 0 | 1 |
| Detroit..... | 0 | 0 | 32 | Houston..... | 0 | 0 | 8 |
| Flint..... | 0 | 0 | 1 | San Antonio..... | 0 | 0 | 1 |
| Grand Rapids..... | 0 | 0 | 2 | New Mexico: | | | |
| Wisconsin: | | | | Albuquerque..... | 0 | 0 | 1 |
| Madison..... | 0 | 0 | 1 | Colorado: | | | |
| Milwaukee..... | 0 | 0 | 11 | Pueblo..... | 0 | 0 | 5 |
| Racine..... | 0 | 0 | 1 | Utah: | | | |
| Minnesota: | | | | Salt Lake City..... | 0 | 0 | 3 |
| Duluth..... | 0 | 0 | 1 | Washington: | | | |
| Minneapolis..... | 0 | 0 | 8 | Spokane..... | 1 | 1 | 0 |
| St. Paul..... | 0 | 0 | 10 | California: | | | |
| | | | | Los Angeles..... | 0 | 0 | 5 |
| | | | | Sacramento..... | 0 | 0 | 2 |

Encephalitis, epidemic or lethargic.—Cases: Kansas City, 1; St. Louis, 76; Fargo, 1.

Pellagra.—Cases: Boston, 1; Charleston, S. C., 2; Savannah, 2; Birmingham, 1; New Orleans, 1; Dallas, 3.

Typhus fever.—Cases: New York, 1; Charleston, S. C., 7; Atlanta, 1; Savannah, 2; Birmingham, 1; Houston, 1; Los Angeles, 1.

FOREIGN AND INSULAR

CUBA

Provinces—Notifiable diseases—4 weeks ended August 21, 1937.—During the 4 weeks ended August 21, 1937, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

| Disease | Pinar del Rio | Habana | Matanzas | Santa Clara | Camaguey | Oriente | Total |
|----------------------------|---------------|--------|----------|-------------|----------|---------|-------|
| Cancer..... | | 3 | 2 | 16 | 1 | 1 | 23 |
| Chicken pox..... | | 3 | | | | | 3 |
| Diphtheria..... | 4 | 18 | 1 | 2 | 1 | 4 | 30 |
| Dysentery (amoebic)..... | | | | | 3 | | 3 |
| Dysentery (bacillary)..... | | | | 2 | | | 2 |
| Leprosy..... | 1 | 6 | | | 2 | | 9 |
| Malaria..... | 100 | 34 | 31 | 186 | 37 | 204 | 592 |
| Measles..... | 2 | 1 | 5 | | | | 8 |
| Poliomyelitis..... | | 1 | | 1 | | 4 | 6 |
| Tuberculosis..... | 51 | 37 | 34 | 75 | 17 | 28 | 242 |
| Typhoid fever..... | 14 | 64 | 32 | 55 | 21 | 28 | 214 |
| Undulant fever..... | | 1 | | | | | 1 |
| Yaws..... | | | | 1 | | 1 | 2 |

CZECHOSLOVAKIA

Communicable diseases—June 1937.—During the month of June 1937, certain communicable diseases were reported in Czechoslovakia as follows:

| Disease | Cases | Deaths | Disease | Cases | Deaths |
|-------------------------------|-------|--------|------------------------|-------|--------|
| Anthrax..... | 10 | | Paratyphoid fever..... | 24 | 3 |
| Cerebrospinal meningitis..... | 9 | 3 | Poliomyelitis..... | 22 | 2 |
| Chicken pox..... | 160 | 1 | Puerperal fever..... | 28 | 10 |
| Diphtheria..... | 1,816 | 85 | Scarlet fever..... | 1,815 | 21 |
| Dysentery..... | 47 | 5 | Trachoma..... | 75 | |
| Influenza..... | 21 | | Tularaemia..... | 2 | |
| Lethargic encephalitis..... | 3 | 2 | Typhoid fever..... | 419 | 24 |
| Malaria..... | 729 | | | | |

FINLAND

Communicable diseases—July 1937.—During the month of July 1937, cases of certain communicable diseases were reported in Finland as follows:

| Disease | Cases | Disease | Cases |
|------------------------|-------|---------------------|-------|
| Diphtheria..... | 196 | Poliomyelitis..... | 20 |
| Dysentery..... | 1 | Scarlet fever..... | 498 |
| Influenza..... | 574 | Typhoid fever..... | 109 |
| Paratyphoid fever..... | 110 | Undulant fever..... | 1 |

JAMAICA

Communicable diseases—4 weeks ended September 4, 1937.—During the 4 weeks ended September 4, 1937, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

| Disease | Kings- ton | Other local- ities | Disease | Kings- ton | Other local- ities |
|-------------------------------|---------------|--------------------------|-----------------------------|---------------|--------------------------|
| Cerebrospinal meningitis..... | 1 | | Lethargic encephalitis..... | | 1 |
| Chicken pox..... | | 34 | Poliomyelitis..... | | 1 |
| Diphtheria..... | 3 | 1 | Puerperal fever..... | | 2 |
| Dysentery..... | 2 | 3 | Tuberculosis..... | 30 | 70 |
| Erysipelas..... | | 1 | Typhoid fever..... | 9 | 81 |
| Leprosy..... | | 3 | | | |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 24, 1937, pages 1354-1368. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 29, 1937, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

China.—During the week ended September 11, 1937, cholera has been reported in China as follows: Hong Kong, 205 cases; Macao, 72 cases; Shanghai, 394 cases.

Plague

Dutch East Indies—Java—Pasoeroean.—During the week ended July 24, 1937, 1 case of plague with 1 death was reported in the mountain region near Pasoeroean, which is about 30 miles from Surabaya, Java.

Hawaii Territory—Island of Maui—Makawao District—Omaopio.—A rat found September 3, 1937, in Omaopio, Makawao District, Island of Maui, Hawaii Territory, has been found plague infected.

India.—During the week ended September 11, 1937, plague was reported in India as follows: Karachi, 4 cases; Sind State, 4 cases.

Indochina—Cochinchina—Sadec.—During the week ended September 11, 1937, 1 case of plague was reported in Sadec, Cochinchina, Indochina.

Yellow Fever

French Equatorial Africa—Fort Archambault.—On September 14, 1937, 2 cases of yellow fever, 1 of which was a suspected case, were reported in Fort Archambault, French Equatorial Africa.

Gold Coast—Apedwa.—On September 10, 1937, 1 fatal case of yellow fever was reported in Apedwa, Gold Coast.

Ivory Coast—Gaoua.—On September 9, 1937, 2 cases of yellow fever with 1 death were reported in Gaoua, Ivory Coast, and on September 14 another suspected case was reported in the same place.

Nigeria—Abeokuta.—On September 7, 1937, 1 fatal case of yellow fever was reported in Abeokuta, Nigeria.

X